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GEOGRAPHICAL

AND

STATISTICAL REPORT OF THE DISTRICTS

OF

JESSORE, FUREEDPORE AND BACKERGUNGE.

BY

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OF THE

DISTRICTS

OF

JESSORE, FUREEDPORE AND BACKERGUNGE.

Geographical Position.

The three districts, of Jessore of the Nuddea Division or Commissionership, and of Fureedpore and Backergunge of the Dacca Division, form, together with the Soonderbun tracts to the south, the central and eastern portions of the great joint delta of the Ganges, Brahmapootra and Megna Rivers, situate between the parallels of 21° 40′, and of 23° 52′ north latitude, and the meridians of 88° 64′, and of 90° 42′ east longitude; these districts, at the time of Survey, were bounded on the north by the rivers Ganges or Podda, the Goraie and the Chundna, which divide them from the districts of Rajshahye and Pubna to the north; on the east by the joint streams of the Ganges, Brahmapootra, and Megna, which separate the districts of Fureedpore and Backergunge from those of Dacca, Tipperah, and Noacolly to the east; on the south by the Bay of Bengal; and on the west by the districts of Nuddea and 24-Pergunnahs. The two districts last-named, together with Jessore, forming the Nuddea Division, or, Commissionership.

Boundaries.

Area.

2. As originally constituted, at time of survey, the number of villages contained in, and the gross area of, each district, were as follows, *viz.* :—

		Number of Villages.	Area in square miles.
JESSORE DISTRICT	Including boundary rivers and Soonderbuns ...	4,578	3,557·39
FUREEDPORE „	Including Bhoobuneshur River	2,013	1,352·95
BACKERGUNGE „	... ...	3,517	4,322.57
	TOTAL ...	10,108	9,232·91

3. Subsequently, however, under the operation of the measures adopted for the general revision of territorial boundaries in Bengal, for the formation of sub-divisions in each district, and for the re-arrangement and re-adjustment of all civil, criminal, and revenue jurisdictions connected therewith, certain transfers of villages were made from, and to, these districts, *inter se*,

* In addition to this Surveyed Area, there are about 1716 Sq. Miles more, included in the unsurveyed portions of the Soonderbuns of Jessore.

1352·75
1033·55
1070·6

and also from, and to, those adjoining. The great object in so doing, being to make each district as compact as possible in itself; to secure to the inhabitants greater facilities of access to the various courts of law; and to obviate the inconvenience, so often experienced under the old arrangements, of persons having to prefer their complaints, if judicial, to the head quarters of one district; if criminal, to that of another; if revenue to a third.

4. The results of these changes, in so far as they affect the numbers of villages in, and the area of, each district, are shown below :—

	Number of Villages.	Area in square miles.
Jessore	4,918	3,805·09
Fureedpore	2,684	1,811·27
Backergunge	3,975	4,668·64
TOTAL	11,577	10,285·00

Revenue Divisions and Sub-divisions.

5. The changes that have taken place in the internal divisions of the three districts since they were first conferred on the "Company" by the Emperor of Delhi in the year 1765, as forming part of the Dewanee of Bengal, Behar, and Orissa, have been very great. Under the Mussulman rule, zillahs or districts were usually divided, with some show of regularity, into chuklahs, chuklahs into pergunnahs, and these again into tuppahs, &c. When this part of Bengal was surveyed by Rennell, Ritchie, Martin, and Richards, from 1764 to 1772, the northern part of the present district of Jessore was designated and known as the province of Mahmudshi; the eastern portion and the whole of the Fureedpore District went by the name of the province of Boosnah; whilst the northern part of the Backergunge District constituted part of the province of Dacca. The names of the minor divisions, pergunnahs, &c., entered on the maps of the above-named surveyors, show equally great changes, and differ considerably from those of the present day. A comparison of the two maps appended to this report—one from the maps of 1764 to 1772 by Major Rennell; the other from those of 1858 to 1864, by the Revenue Survey Department, will be found exceedingly interesting, attesting as they do, not only the great changes made by nature during the century, but those created by man also.

6. At the time of survey the primary divisions of chuklahs, pergunnahs, tuppahs and mehals, were found mixed up together in most perplexing confusion. Whole pergunnahs of one district were sometimes untraceable until search had been made in the districts adjoining.

7. Thus several Pergunnahs of, and belonging to, district Jessore, and which were duly entered in the collectorate records of that district, could not be found within its limits, but some were afterwards discovered to be outlying in detached plots in the adjoining districts of 24-Pergunnahs and Nuddea.

8. A detailed list of the primary divisions of outlying lands in each district and the areas appertaining to each, as classified in the records of the Revenue Survey, are given in the Appendix (1). This, however, gives but a faint idea of the extraordinary intermixture when the minor Divisions of Pergunnahs and Mehals are considered.

9. The district of Jessore is now divided into 6 sub-divisions and 22 thannahs, or police circles; that of Fureedpore into 2 sub-divisions and 8 thannahs; and of Backergunge into 4 sub-divisions and 15 thannahs. Each sub-division is generally under the control and supervision of a Deputy Magistrate, assisted by the usual subordinate staff, magisterial and police. The Deputy Magistrates being themselves under the immediate supervision of the Magistrates of their respective districts, who reside at the sudder stations of Jessore, Fureedpore and Burrisaul.

Criminal Divisions.

10. The limits of the civil jurisdictions are conterminous with those of the revenue and criminal. Jessore and Backergunge Districts are separate judicial circles, with Judges stationed at Jessore and Burrisaul, the head quarters of those districts respectively, whilst Fureedpore, being too small to form a separate judicial circuit, is included in that of Dacca. Each circuit is again sub-divided into several Moonsiffs or Small Cause Court circles, which are conterminous with, and include one or more of, the before-mentioned criminal sub-divisions. Table (II) of Appendix gives the numbers and names of all the civil and criminal divisions and sub-divisions within the three districts, and shows the relation that one bears to the other.

Civil Divisions.

11. The climate, generally speaking, is by no means a good one. The constant humidity of the atmosphere, caused by the vapours which are constantly rising from the numerous streams that traverse the country in all directions, and from the numerous and extensive lakes and swamps that are scattered over this tract of country, renders it enervating and depressing for the greater portion of the year. During the cold season, and the spring, heavy fogs are exceedingly prevalent; and, in the vicinity of the great central morasses, and over the whole extent of the Soonderbuns, are the rule, not the exception. They generally commence about day dawn, and last until 10 o'clock or later.

Climate.

12. Fevers of all kinds, and dysenteric diseases prevail ordinarily throughout the year. Cholera and small-pox are also annual visitants, and carry off large numbers of the population. Fevers appear to be most deadly in the autumn, and in the commencement of the cold season; small-pox in the spring; and cholera in the early summer months. During the progress of survey operations, it was noticed, that the last-named disease usually made its appearance first in the villages bordering on the Soonderbuns, thence it travelled northwards, and appeared to gather strength and virulence as it progressed. It seldom remained long in the Soonderbuns Villages, and was generally followed by fever and ague, and one year by small-pox.

Fevers, &c.

13. During the progress of the survey less cholera was noticed in the Fureedpore and Backergunge Districts than in that of Jessore, whilst fevers appeared equally prevalent in one as the other. The inhabitants of the south-eastern part of Backergunge District and adjoining islands, however, complained greatly in 1861-62 of the mortality caused amongst them by fevers in the preceding autumn. On the islands of Kaloe Chur and Kajul, whole hamlets were declared to have been swept of their male inhabitants, the scourge having, it was said, left the women and children compara-

Cholera.

tively unscathed; one cause for this may have been, that the men are constantly wading about in the muddy swamps and khalls, tending their herds of buffaloe, and are more exposed to miasma, than the women and children, who seldom go far from their villages, and are not similarly exposed to its influence.

14. This part of Bengal (Southern Backergunge) appears to have been getting more unhealthy for several years past, and the fact may be accounted for by the constant increase of shoals and mud banks, to the east and south-east, immediately adjoining the coast line. These banks, which, in Captain Lloyd's time, were almost always entirely covered with water, have spread greatly since then, and now present a vast expanse of steamy and offensive mud at every ebb, the effluvia arising from which in the day-time, when wading across the harder portions to make observations, was often most disgusting and oppressive. These miasmatic exhalations must, of course, act most prejudicially on the health of those living within their influence. During the cold weather when northerly winds prevail, and drive the noxious vapours out to sea, the villages along the coast, and on the islands, appear healthy; but no sooner do the sea breezes come in with the southern monsoon in March or April, than fevers commence, and, the inhabitants assured me, increase as the wind becomes more settled and constant from the sea. Along the whole line of coast the flood tide was generally observed to bring with it a steady breeze from sea, though during the ebb, perhaps, scarcely a breath had been stirring.

15. In prosecuting the survey of these districts, my establishment took the field annually in December, when fevers had disappeared in most parts, and continued actively employed until the end of May. During the years it was so employed, less sickness was at the time experienced in the south, than in the northern parts, and least of all when actually employed in surveying the swamps.

Bad water, cause of sickness.

16. It was observed in the northern parts, that so long as the fresh water supply in the tanks, wells, and streams, was good and plentiful, little sickness, comparatively speaking, prevailed. But as the hot season drew on, the low lands became thoroughly dry, the water began to get low in the tanks, and stagnate in pools in the smaller streams, and then sickness rapidly increased. In the latter part of April and in May the water in the tanks, especially in the Fureedpore District, became exceedingly foul and bad. The vegetation in them began to decay, and the fishes in many instances died soon after, rendering the water unfit for drinking or bathing purposes. It was also observed that when cholera was at its height, many of the villagers along the banks of the Nubogunga, instead of burning, or burying the bodies of those who died of the disease, fastened weights to the corpses and sank them in the stream from which they obtained water.

Driest parts most unhealthy at certain seasons.

17. The fact of the driest parts of alluvial and once marshy tracts, for they are subject to annual inundation, proving, at certain seasons, more unhealthy than those which always remain moist and damp, is thus explained by Dr. Martin when giving his opinion on the draining of the Salt Water Lake near Calcutta in 1839. He says:—" Dr. William Fergusson, Inspector General of Hospitals, and the most distinguished of the many writers on this particular subject, states that the marsh must cease to be a marsh, in the common acceptation of the word, and the sensible putrefaction of water and vegetables must be alike impossible, before its surface can become deleterious. To render

these seemingly paradoxical statements intelligible, Dr. Fergusson gives a review of the circumstances which, under his own observation, attended the British Army on various services and expeditions in Holland, the West Indies, Spain, and Portugal."

18. "This distinguished military physician states that a previous marshy surface, or rather the previous abundance of water, is an indispensable requisite in all situations to the production and evolvement of marsh poison, and that a healthy condition of soil is infallibly regained by the restoration of the marshy surface in its utmost vigour of vegetable growth and decay, so unessential does he consider putrefaction or the humid decay of vegetables, under any sensible, or discoverable form, towards the production of miasmata."

19. "The ground of encampment which nearly destroyed the British Army in the plains of Estremadura was so arid and dry for want of rain, that the Gaudiana itself and all the smaller streams had in fact *ceased to be streams*, and were no more than *lines of detached pools* in the courses that had formerly been rivers. Many more instances of aggravated fevers are given by Dr. Fergusson in situations as dry as a brick ground, with the vegetation utterly burned up."

"To assert after this, that the putrid marsh, which must necessarily, to a certain extent, be a wet one, is positively less dangerous than another where no smell exists, will not, I am sure, appear paradoxical, for it is only saying that the first has not yet arrived at the degree of exsiccation that has been found most productive of the marsh poison, and the putrefaction, though it may, and must often, precede and accompany pestilence, is no part of pestilence itself."

20. "In short, abundant experience has proved that when the surface of the ground is wet, the malaria poison is far less noxious than when all appearance of moisture on the surface is gone, and the damp makes its way into the atmosphere from a considerable depth under ground."

21. I should, however, remark that though the Native establishment suffered greatly from sickness in the north of Jessore and in Fureedpore, the European officers attached to the survey did not. I attribute their immunity from sickness to two facts—*First*, to a more generous mode of living; and *secondly*, and I believe this to be the chief reason, to the great care observed generally by Europeans in selecting and purifying their drinking and bathing water. Much as the atmospheric influences may, and do no doubt, tell in the production and spread of miasmatic fevers, I feel sure that the quality of the water used for cooking, drinking, and bathing purposes, exerts a far greater and more decided influence.

Aspect and superficial configuration.

22. The general aspect of the country is flat, tame, and from the monotonous recurrence of its scenes, uninteresting. There is scarcely a perceptible undulation to break the apparently uniform and even surface of these alluvial plains. Every natural hollow is full of water, around the margin of which long grasses, reeds peculiar to swamps, and other aquatic plants grow in the greatest profusion, often making it difficult to say where the land ends, and the water commences. The general slope of the country is from north to south and very slight. From the Ganges or Podda River to the Bay of

Bengal, the difference in level is only about 22 feet over the whole distance of 150 miles, or an average slope of 1·8 inch per mile. There is also a general depression towards the centre of these districts.

23. To facilitate the general description of these districts of Bengal they may be conveniently considered as sub-divided into three great, and well-marked, zones or divisions. The first division includes the northern portions of Jessore and Fureedpore, and the northern and eastern of Backergunge. These are the oldest and most consolidated, and consequently the highest and driest, parts of the country. The central portion of these districts forms the second division, or zone, over the whole extent of which considerable local depressions, or hollows, exist, left probably by the receding sea, and which now form a series of immense morasses and lakes. Finally, the third, or southern zone embraces the whole of the country south of the swamps, including the tracts of Soonderbuns forests, appertaining to the districts of Jessore and Backergunge, together with the belt of low, but well populated, and well cultivated, country intervening between the Soonderbuns and the great swamps.

1ST DIVISION.
Soil.

24. A fine rich soil extends throughout the whole of the first mentioned division or zone, of considerable depth in most parts, and, excepting, the low-lying paddy lands, admirably adapted to, and capable of, producing every kind of crop. The country is well cleared and cultivated; the sole exceptions to this rule being, in places, where the inhabitants have been forced by unusual sickness and mortality, or other pressing cause, to seek some more favorable locality; as for instance, in the south-west of Jessore, from the junction of the Koyra and Cobbaduk Rivers downwards to the village of Gobra; and, again, in Backergunge, on the banks of the Megna, at the junction of the Ilsa Branch River, and where the old clearings and sites have accordingly relapsed into dense jungle.

Village sites in Jessore and Fureedpore.

25. In Jessore and Fureedpore the villages are either scattered in large clumps here and there over the plain, or extend themselves in long, and often continuous, lines. In every case, except in villages of very recent formation, the sites are densely wooded with mangoe, date, betel, palm and other trees, intermixed with bamboos, gigantic creepers, and all kinds of tropical vegetation, with huts and gardens scattered throughout the jungle. The villages are always found on the highest spots in the neighbourhood of, or on the very borders of, the jheels; or they wind through the country, following the tortuous curves of the numerous streams that intersect it in all directions, and whose banks, being raised higher than the rest of the country, by the annual inundation deposits, offer the best localities for building, whilst a plentiful supply of fresh water may generally be obtained during the driest season from their beds.

Along many of the larger streams, the line of villages is often unbroken for miles together, so much so, that it is quite impossible for the traveller to identify the end of one village from the commencement of the next. The huts, except in markets and bazars, are, however, seldom close together, but are scattered amidst small garden plots, mangoe, date and betel nut groves, paun gardens, &c.

26. The plains between the villages are almost invariably more or less depressed towards the centre, where usually a marsh, or lake, or deep lagoons may be found, which doubtlessly once formed portions of some of the numerous outlets, by which the Ganges in former days found

its way to the sea. The whole country in fact is indented and marked with these old river beds, all indicative of the many and great changes that have operated over these tracts in times past, and which are still acting, more slowly perhaps, but, as surely, in the present.

Villages in Backergunges.

27. In Backergunge the villages are more scattered and less defined than in Jessore and Fureedpore; indeed, in many parts are not defined at all, each villager having ordinarily selected as the site for his house, the spot which appeared to him to be most eligible in relation to his agricultural pursuits,* and wholly without reference to any future village community. Throughout all these districts, the huts are usually artificially raised on earthen mounds of varying heights above the general level of the country.

Indigo and Sugar Factories.

28. The numerous indigo, and sugar, factories scattered over these upper portions of the districts of Jessore and Fureedpore, impart an air of civilization to, and greatly enliven, the scenery wherever they appear, and present by no means the least interesting feature in the landscape. There is an appearance of solid and unmistakeable comfort about them generally, that is exceedingly refreshing and delightful. Always built in the most open spots, they stand boldly out, and offer a striking contrast to the neighbouring Bengallee habitations, which are so buried in jungle as to be barely visible until arriving within a few yards of them. The fields around the factories are generally better tilled; good fair weather roads lead to and from them; the cattle that graze in the neigbouring fields look sleeker and better conditioned than in parts of the country where no Europeans are located; and there is, invariably, a well attended and fairly supplied market and bazar close at hand.

Date cultivation in Jessore.

29. The cultivation of the date tree is largely on the increase, and groves of these trees (forests they might well be called in many parts) are springing up in all directions in Jessore, but more especially in the western part. It appears to be a very remunerative employment, and to be greatly prized by the inhabitants both on that account, and because it involves less hard out-of-door labor under a burning sun than almost any other kind of cultivation.

In Fureedpore.

30. In the Furreedpore District, as compared with Jessore, but little ground is exclusively devoted to date cultivation, the cultivators preferring to plant the trees along the boundaries of their fields, and throughout the village sites. The same may be said of Backergunge. The trees generally remain on the spot where they are first sown; and in plantations are set about 8 to 9 feet apart. But if the ground be low, and subject to inundation for any length of time, the seedlings are first propagated in a nursery; from whence they are transplanted during the months of May and June, or soon after the commencement of the rains, a certain degree of moisture being absolutely necessary to ensure their flourishing in the new site chosen for them. The Natives generally prefer a deep rich clay soil for date cultivation, well above inundation level, if possible.

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* This want of definition became a source of great difficulty when compiling the map of the district in the Surveyor General's Office. It was often impossible to say whereabouts to fix the dot or other conventional mark to designate the village.

31. Great trouble was complained of in some parts of the country in keeping date trees out of the indigo lands, as the ryots employed in sowing indigo constantly cast in date seed also, and strove hard to preserve the trees. Had they sown them only on the outer ridges of the fields, possibly little injury would have resulted to the indigo; but some zemindars strongly object to their being sown, at all, on indigo lands.

Tapping or extracting juice.

32. The trees should not be tapped, to extract the sap, until they are six or seven years old. But the Natives seldom permit them to attain that age, commencing the tapping, ordinarily, after the fourth, and sometimes as early as the third year. The evil consequences of this improvidence are small returns of sap; weak and sickly growth of trees; and finally their deterioration and destruction many years before they would otherwise have been exhausted; on the other hand, the advantages, obtained by early tapping, are quicker returns for the money laid out during the first years of the tree's growth; but these by no means compensate for the loss in after years.

Duration of Tapping.

33. Tapping generally commences early in October, when the rainy season is passed, and continues until the middle of March following. Some persons continue to extract the juice still later, but the heat of the weather after that period, generally causes it to ferment so rapidly, that little or no goor (coarse crude sugar) can be obtained from it. The trees, moreover, require rest to recover themselves, after being deprived of so much sap for so long a period.

Mode of Tapping.

34. Shortly before the regular process of tapping begins, the men employed in this work strip off the lower leaves of the tree, and make a horizontal incision close under the crown leaves (which are left untouched) through the outer bark or skin, and well into the underwood, about 5 or 6 inches in breadth by 2 or 3 inches in depth. Below this cut, the wood and bark is pared away to the length of 10 or 12 inches, preserving a flat surface sloping outwards and downwards from the inside of the top cut, and forming a deep notch in the tree. Down the centre of which, and from both sides sloping downwards, small grooves are scooped out, of about ¼ of an inch in depth, meeting in a point, about ⅔ down the exposed surface. These serve to conduct the sap to a small bamboo tube, which the tapper inserts, at their point of junction, and below which an earthen pot, capable of holding several seers, is suspended to catch the juice.

35. The sap runs all night, and is collected early in the morning in other pots by the same man who made the incision the previous night, aided by one or two boys. It is then carried away to the boiling house, which is generally close at hand, and is at once boiled down. On the freshness of the juice, and its freedom from fermentation, depends the return of goor; it is, therefore, essential to collect it early in the cool of the morning, and to convey it to the boiling house as speedily as possible.

36. In the evening the tapper re-visits the trees; scrapes the surface of the cut; cleans out the grooves; and hangs up the pots that he left in the morning at the foot of the trees. He repeats this process for three days in succession, after which it is usual to give the trees a rest for three days before tapping again. In favorable weather this rule is followed throughout the season. But when fogs are heavy, or rainy weather sets in, it is usual to give the trees rest also; both states of the weather operating injuriously on the flow of sap and rendering the tree liable to rot and die, if tapping be persisted in.

37. As a rule only one such cut, as that described, is made annually; but occasionally a second incision, on the opposite side, may be resorted to; though such an occurrence is very rare. These cuts are made annually, and alternately, on opposite sides of the tree, the age of which may be easily determined from the number of notches.

38. One man, with the assistance of one or two boys, or women, can look after properly, and collect the sap, of about 60 trees. His wages would be, on an average, Rs. 3 to 3-8 per mensem during the tapping season. He and his assistants receive their food daily; and at the close of his labors he is presented with a pair of dhoties or sheets, and one pair of shoes. The life is a hard one and not exempted from danger. Serious accidents sometimes happening to these men from the breaking of the rope, which they loop round their bodies and the tree, to aid them first in climbing the trees, and afterwards to support them, whilst they are preparing the sap cut of an evening, or taking down the sap-pot in the morning. If the rope parts, or the knot slips, nothing can possibly save the man from falling headlong backwards to the ground, and in such a case he is a lucky fellow who escapes with only a broken leg or arm.

39. Date trees are usually rented by the score. Rates differ; but the general one appears to be one anna per tree, or Rs. 1-4 the score. Some Native sugar-boilers, however, assured me that they paid as high as Rs. 2-8 per score in seasons of great demand for sugar.

40. Young trees are said to yield about 4 to 5 seers of juice per diem the first few years; 8 seers when in full bearing; and again only 4 to 5 seers when old, or perhaps an average of about 5 seers throughout. The best and most productive, at the same time the largest quantity, of sap is collected during the cold season, in the months of December, January, and February. The colder and drier the season is, the more favorable is it for the date grower. Fog and rain both act, as before remarked, most injuriously on the flow of sap, and predispose the tree to rot off at the crown if the tapping be continued.

41. If the sap be of first-rate quality, and quite fresh, 6 seers boil down to about 1 seer of goor (the coarsest kind of ungranulated brown sugar). But of sap of ordinary quality, from 8 to 10 seers would probably be requisite to obtain that quantity of goor; 7 seers may, therefore, be taken as the average quantity of juice required to yield 1 seer of goor.

42. The annual expenses for 100 trees would then appear to be as follows, *viz* :—

	Rs.	A.	P.
Rent of 100 trees, at Rs. 1-4 per score	6	4	0
Wages of 2 men extracting sap for five months	29	3	0
Food for 2 men, at Rs. 3 per mensem for five months	15	0	0
2 dhooties, 2 chudders and 2 pairs of shoes	3	8	0
Pots, pans and fuel	26	0	0
Rent of land on which hut and boilers stand	3	0	0
Other contingent expenses, say	5	0	0
TOTAL ...	87	15	0

43. Let us now calculate the returns. The trees being tapped three days and resting three days successively during the five months from October to middle of March, give 75 days' yield of

sap; from this, however, deducting 10, for very foggy and rainy days when there is no return of sap, there remain 65 actual productive days. Taking the average yield per diem of each tree during that period to be as calculated, 5 seers, gives $65 \times 5 = 325$ seers for each tree, or 32,500 seers for the 100 trees. Supposing, again, 7 seers of sap to yied one seer of goor we have $\frac{32500}{7} = 4,643$ seers $= 116$ maunds, as the quantity of goor made during the season, which, at 40 seers per Rupee, is equivalent to Rs. 116, against a disbursement, as shown above, of Rs. 87-15, say Rs. 88, leaving a clear gain, supposing a man not to have called in the aid of a mahajun or money-lender, of Rs. 28 per annum. The data on which this statement has been prepared was gathered from Native sugar boilers, and others, in the districts of Jessore and Fureedpore.

44. According to the data given by Mr S. H. Robinson, in his Prize Essay on the cultivation of the date tree, and the manufacture of its juice into sugar, the gain per annum on 100 date trees differs somewhat considerably from the above average, and would stand thus:

45. Number of days tapping $65 \times 5\frac{1}{2}$ (the average yield of one tree per diem) according to Mr. R. $= 357\frac{1}{2}$ seers of sap or juice, which at 10 seers juice to produce 1 seer goor, gives $35\frac{3}{4}$ seers of goor. This multiplied by 100 (the number of trees) $= 3,575$ seers $= 89$ maunds, 15 seers, for the total annual yield of goor, the value of which at 1 Rupee per maund, is Rs. 89-6. This calculation shows a profit of only Rs. 1-6 per annum per 100 trees, and differs from my calculation by Rs. 26-10.

46. The boiling process is precisely that described by Mr. R., so also is the preparation of the different kinds of sugar from the goor.

47. In purifying the sugar, the Native refiners use a common water weed, called in Jessore "semoar" or senwar which grows plentifully in the Cobbaduk River, and other streams, to the south of Jessore. The zemindars, who hold lands on the banks of these rivers, reap a handsome annual profit by its sale. It is gathered by the poorer classes, and sold by them at the rate of 3 pice per cooly load, of about 20 seers weight.

48. The mode of using it was thus described: when the sugar is almost sufficiently boiled, the refiner takes a certain quantity of the weed, and places it on the top of each pot of sugar. The steam rising from the boiling mass below, passing through the weed, extracts a certain quantity of its juices, and a considerable quantity of steam being condensed by contact with the cool weed, returns, thus charged, to the mass of boiling sugar below, with which it mixes, and is said to improve both its flavour and quantity, and to impart a pleasant odour to the sugar. Subsequently, and after squeezing out the treacle from the sugar in coarse bags, fresh layers of the weed are placed, from time to time, on the top of the sugar in the clarifying pots, and sprinkled occasionally with water, the moisture passing off by small holes in the bottoms of the pots.

Sugar-cane.

49. Throughout the Fureedpore District, and very generally along the higher banks of the streams in the south of the Jessore and Backergunge Districts, sugar-cane is largely cultivated. Where bunds exist, the ground, immediately between them and the water, is selected for the growth of canes, as being

highest, and, in consequence of the annual deposits of fresh soil during the inundations of the rainy season, and of the high spring tides in March and April, by far the richest. On these lands the plant, though small, grows luxuriantly, seldom fails, and yields a fair crop every year. Here no manure is used. But in the Fureedpore District, where the country is raised beyond ordinary inundation level, the cultivators bestow more care on their cane fields than on any others, and manure them with scrapings from tank bottoms, sweepings, &c. In Fureedpore the cane alternates with other crops, and is never, I believe, sown annually on the same ground.

50. The canes are usually planted, or set, in December and January after the ground has been well ploughed five or six times, and are cut in the same months, or a little later, the year following. The number of canes set in one beegah varies from 1,000 to 1,800, according to the size or growth of the species of cane planted. The yield per beegah varies from 20 to 30 maunds of goor; 40 maunds; are said to be occasionally yielded, but this quantity seems quite exceptional, and rare in the extreme. The probable money value of crop may be calculated at from Rs. 35 to 60 per beegah.

Kind of Mill used.

51. The mill in common use, ordinarily consists of two endless, coarse-threaded, wooden screws of about 8 to 10 inches diameter, set vertically in two horizontal cross pieces, and firmly fixed to two up-rights, which are let well into the ground. These screws have their threads cut right and left, and play into each other. They are made of any hard close grained wood, tamarind being preferred. To the upper end of one of the screws, which projects above the horizontal bar, a long pole is attached to which the bullocks that turn the mill are yoked. The cane is generally passed twice through the mill before being cast aside to dry for fuel. The expressed juice is received in a basin formed for the purpose below the screws; women or boys are usually employed to feed the mill with canes and drive the bullocks.

Fuel used in boiling the cane juice.

52. The principal fuel used in boiling down the cane-juice is that furnished by the plant itself from the dried leaves, and the refuse cane, (bast) after the juice has been expressed. I was unable to procure any satisfactory returns of the expenses and profits of this cultivation.

Indigo.

53. One of the great staples of wealth in the Jessore and Fureedpore Districts was indigo. The cultivation of this plant was very extensive over all the high lands to the north of the great swamps. Whilst in Jessore patches of indigo were found here and there, as far down as the civil station of Khoolnah, at the junction of the Bhyrub River, and the Roopsah Khall or Pussur River, close to which is the Khalespore Indigo Factory. The ruins of one or two old indigo factories exist also in the Backergunge District, but no indigo is now grown there, worth speaking of.

54. The whole question of indigo planting in Bengal has been so thoroughly analyzed, and exhausted by the Indigo Commission appointed under Act XI of 1860, in their report to Government, published in the same year, that little further than a passing notice, of this important branch of industry, on points applicable to Fureedpore and Jessore, is necessary.

55. The finest indigo that the world produces is, I believe, generally admitted, to be that of Bengal, and second to none is the indigo of Jessore and Fureedpore.

56. There are two seasons for sowing indigo, that at the close of the rainy season, called "October sowing," and that in the commencement of the hot season, called the "spring sowing."

Seasons for sowing.

57. October sowing is usually resorted to on the low chur lands or islands, and sand banks of the great rivers Ganges, &c. These are sown down with indigo as soon as the waters have receeded sufficiently to permit of the land being loosely turned up for the purpose, or the seed is simply scattered over the still damp ground. The October plant is usually ready to cut, and be worked up into indigo in May or June before the churs are again submerged by the rising waters. A very early and unexpected rise of the rivers is therefore likely to be fatal to this crop.

October sowing.

58. The time of spring sowing depends entirely on the advent of a good "jow" or fall of rain, sufficient to cool the ground, and admit of its being ploughed, harrowed, and sown. This may take place late in February, and if so, and alternate sunny and showery weather follows, the indigo may, equally with October plant, be cut early and worked off in June, and a bumper season result. But, with very rare exceptions, a good rainfall seldom takes place until the end of March, or the commencement of April, sometimes indeed not until the end of April; when this is the case it is manifestly impossible to expect full grown plant before the very end of June, or commencement of July; that is, not until long after the periodical rains have set in, and the weather has become most uncertain.

Spring sowings.

59. Now to work off the plant to advantage, the planter requires fine weather to cut and carry it, and a continuance of fine weather to beat it out in his vats. It is clear then that in these respects the chances are in favor of the October plant; but, on the other hand, the produce of the October is said to be neither, so large, so good, or so valuable as that of the spring plant, and hence the preference shown for the latter.

60. In Fureedpore and Jessore the indigo cultivation is chiefly confined to what are commonly called "high lands," or those, in contradistinction to the low or chur lands already mentioned, which are only inundated in the very height of the rains, or are protected by bunds in more exposed situations. On such lands the custom and usage of Bengal has hitherto given preference to spring sowing. Even where high lands have been sown as an experiment in October, I have seen them all broken up and re-sown in April for spring produce without a fair trial having been given to the October plant, so highly are the chances of a good spring crop prized.

61. The average produce of indigo plant per Bengal standard beegah of 1,600 square yards is about 9 bundles, each measuring 6 feet in circumference. The indigo in these bundles is packed in double lengths, placed stems outwards and leaf inwards, exactly as though two sheaves of corn were made into one, with the ears turned inwards. The money value per beegah of this plant to the ryot, varies therefore, from Rs. 2-4 to 1-2 according to the rate at which he was bound to deliver it at the factory, at from 4 to 8 bundles the Rupee. Most of the large factories latterly gave the higher price or one Rupee for 4 bundles.

62. The cost of cultivating one standard beegah appears to be about Rs. 2 or 3. Taking the lowest rate, and supposing the ryot to derive no other profit from his beegah of land, and serting aside any and all other collateral advantages that may accrue to him from cultivating it, the gain to the ryot per beegah, under the above circumstances, would be 4 annas. Under most other circumstances, he would be a loser rather than a gainer on the indigo crop alone.

Cost of production.

63. But as winter crops of some kind, generally mustard, or oil seeds (it must be some crop fit to cut before the time comes for ploughing for spring sowing) are *sometimes* allowed to be sown on the ground chosen for indigo, and as a crop of seed *sometimes* follows the indigo cutting, in such cases, the ryots would reap some further return from the lands devoted to indigo cultivation.

64. The average produce of indigo in maunds, as given by Messrs. R. Thomas & Co., Indigo Brokers, Calcutta, for the 10 years, commencing 1849-50 and ending 1858-59, was for Jessore 10,791 maunds, and for Fureedpore, 1,583. In Jessore the best outturn was 16,818 maunds in 1849-50, and the least 6,885 maunds in 1855-56; whilst in Fureedpore, the best season was that of 1854-55, when 2,048 maunds resulted; and the worst was in 1853-54, when only 815 were brought to the market.

Quantity produced.

65. The small outturn in Jessore in 1855-56 was caused chiefly by a severe storm which swept over the country, accompanied by severe hail and rain; and which beat down and destroyed immense quantities of splendid plant. A friend of mine, a planter in the district, told me, that had he but heeded the warnings of the barometer, he might have saved the factory, and consequently, his ryots, from serious loss. The weather was beautiful, the plant growing luxuriantly, and improving every day, whilst the barometer continued falling slowly but steadily. The hope of a more favorable return, by waiting a few days longer, prevailed. He disregarded the barometer, which, by the way, he had only that year had recourse to, and did not cut and work off the plant before the storm, and the consequences were most unfortunate. I mention this for the benefit of others, and to show how useful a careful consideration of this little instrument (the barometer) may often be to the planter.

66. Supposing 6 maunds of indigo to be the average return of 1,000 bundles of plant, and 9 bundles of plant, as before, to be the average produce of a standard beegah, the average outturn of 10,791 maunds in Jessore, and of 1,583 maunds in Fureedpore represented an extent of indigo cultivation, in the first district, of 1,99,833 standard beegahs, or 66,066 B. acres, or 103 square miles, and in the second of 29,315 beegahs = 1,691 acres = 15 square miles.

67. Now the general advance made to each ryot is said to have been Rs. 2 per beegah, upon ryot cultivation, and supposing 1,55,426 and 22,800 beegahs of the above areas respectively to have been ryoti, which is the average according to the existing proportion in the several large estates of Jessore and Fureedpore, quoted in Appendix No. 1 of the Indigo Report. It would appear that, supposing each ryot received cash payment in full, no less than Rs. 3,10,852, and Rs. 45,600, were thus circulated yearly, free of interest, amongst the peasantry of the districts of Jessore and Fureedpore, respectively. The deduced estimate of area under indigo

cultivation in Jessore agrees very nearly with that given in the published report of the actual returns for 1863-64. There is, however, a great difference in the comparison of my calculation with the published report of outturn for Fureedpore, for, whilst the report shows a larger area under indigo cultivation, it shows less than one-third the produce.

68. Many collatreal advantages have been adduced to show, that the ryot is a greater gainer than is generally supposed by indigo cultivation, and there is undoubtedly, in many instances, a great deal of truth in the facts so adduced. But a Native is not generally inclined to be favorable to such a system of debit and credit, and soon learns to consider any favors or remissions granted him on account of indigo as "rights," not "concessions." No people, moreover, are so thoroughly wedded to old customs (*dustoor*) as the peasantry. All look forward to sowing their rice with the first good showers; and when the spring rains are late in coming, and the planter requires the village ploughs for spring indigo, just as the ryot wants them for his "aous," or spring rice, their interests clash, and "*dustoor*," which the Native loves, must give way to "indigo," which he hates.

69. All crops are to a certain extent precarious, but the indigo is specially so. The rice crop, moreover, is annually increasing in value, and must be sown at the proper season. If the rice crop fail, and if the ryot have nothing to do with indigo, he sets down his loss wholly to "fate" (*kismut*). But if he cultivates indigo also, no small share of the blame is shifted from "fate" to "indigo," for which the ryot had perhaps to use his ploughs at a time, when, otherwise, he would have used them solely for his rice lands. Argument in such cases is simply useless, indigo interferes with rice, and they do not like it for this fact alone.

70. Another constant source of dislike and dread to the ryot connected with indigo cultivation, is the following, *viz.*:—That no matter how fine his plant may be, or, how much he may wish to cut it at a certain time, he cannot do so, unless it suits the planter's time also. Now, as the planter can only work off a certain quantity of plant daily, it not unfrequently happens, that the forced delay in cutting a fine and promising crop results in very great or partial loss to the ryot, who in either case is naturally discontented at the result.

71. No cultivation is, I believe, so precarious as that of spring indigo, and as long as it continues to be so, and clashes with rice sowing (and I see no reason for any amelioration except in the few chance years of early spring rains, and subsequent showery and favorable weather) it will always be a distasteful crop to the ryot; and will continue to be disliked and avoided by the cultivators, until it carries really solid advantages with it, in the shape of hard cash; until, in fact, payments for indigo are made freely and without constraint, irrespective of land rent.

72. I cannot but think that were irrigation called in aid; more care bestowed on the cultivation, generally, on high lands; and men, ceasing to look to making sudden fortunes, to permit the ryots to have a fair share of profits (say, at the end of the season when the profits of the concern are known and declared; or by paying considerably higher rates for plant) that excellent and well paying results would follow. I have never seen irrigation resorted to in these districts except for rice cultivation, and that only in the lowest lands, in the immediate vicinity of a bheel or river; and I have seen large tracts of valuable and splendid

soil, lying, year after year, neglected and untilled, simply because very early sowing, to ensure the ripening of the crop before the setting in of the rainy season, was impossible, in the absence of very early rain or irrigation. But the early rain seldom came; and though untold quantities of water lay ready at hand to carry out the second, the inhabitants preferred to leave the lands waste, rather than do what their fathers had never done before them, and raise water courses, or acqueducts, to convey the water over the lands. There is, I believe, a great deal yet to be done in Bengal as regards irrigation, and utilizing its vast stores of water.

Rice.

73. The rice cultivation in Jessore, Fureedpore, and Backergunge, is carried on in precisely the same way as that described so well by Major Smyth, Revenue Surveyor, in his Statistical and Geographical Report of the 24-Pergunnahs District. Differences exist in the names of the various varieties of "amun" and "aous" rice, but as these are quite unintelligible to any other persons than Native cultivators and dealers, I have not thought it worth while to notice them.

74. The only difference existing in the rice cultivation in these districts is that a larger proportion of "burro" dhan is grown throughout the extensive marshes, and perhaps in deeper water than elsewhere. I have seen a single stem of "burro" dhan brought from the great swamps common to Fureedpore and Backergunge upwards of 30 feet long.

Safflower.

75. The cultivation of safflower is on the increase in Furreedpore, and in the northern and higher parts of Backergunge. The land generally chosen for this plant is the rich light soil, near the banks of the large rivers, or on the islands. The seed is sown in October, and the flowers gathered in April following; six or eight good ploughings are needed before the seed is put in the ground. Rapeseed is generally sown down with the safflower, and occasionally in Furreedpore bearded wheat. The fields require to be kept clear of weeds, and the earth round the roots of the plants to be occasionally loosened. The crop is a very exhausting one, and if manure be not available, it is usual to alternate it with oil seeds or rice. After the safflower crop has been gathered in, the ground is often ploughed up immediately, and prepared to be sown down with dhan.

76. One beegah of safflower cultivation requires about 10 seers of seeds valued at 10 to 15 annas, and yields from 11 to 13 seers dried flowers, the average selling price of which at 2 to 2½ seers per Rupee=4-8 to 6-8 Rs. It produces also 5 or 6 maunds of seed, from which a coarse lamp oil is expressed by heat, representing a money value of about Rs. 3.

Jute.

77. Throughout these districts, but chiefly on the chur lands along the banks of the Megna, the cultivation of jute is gradually extending itself. This crop also greatly impoverishes the soil, and accordingly the ryots select, when available, the lands that are annually renovated by the inundation deposits of the rainy season, but even on these lands they seldom grow jute two years consecutively.

78. The seed is sown in the months of April or May after four ploughings, the plant being cut in the following April. A standard beegah requires two seers of seeds, and yields about four maunds of fibre, more or less, according to season and soil. After the seed vessels have been

removed, the plant is made up in bundles, and steeped in the nearest khall or jheel, where it remains until strong fermentation has set up, and the decomposition of the grainy matter of the plant allows the fibres to separate easily. The plant is then beaten and spread out to dry on the banks; and lastly, the woody parts are separated by hand labor from the fibre, which is then either stored for use, or taken to market for sale. Very little care is ordinarily taken in cleaning such fibre as may be intended for making common cordage. But when prepared for making nets for fishermen, much more attention is paid to the process.

Cotton.

79. A small quantity of cotton is grown here and there in these districts, but entirely for home consumption. All the crops that came under notice were exceedingly poor; and the plants weakly and unprolific.

80. The following are the principal cold weather crops of the high lands :—

Mustard.—The seed is sown in October, after the land has been ploughed five or six times, each beegah requiring 2 to 2½ seers of seed; the crop is gathered in February following, and yields a return of about 2 to 2½ maunds per beegah, valued at about Rs. 1-4 per maund.

Wheat.—Is sown in the Fureedpore District in October, and reaped in February; six or seven ploughings are required prior to sowing; each beegah takes 12 seers of seed, and yields on an average 2 to 2½ maunds, valued at Rs. 1-4 per maund.

Gram.—After the ground has been ploughed six or seven times about 10 seers of seed is sown per beegah in the month of October. The crop is reaped in the next February, and produces about 6 maunds, at a market value of Re. 1 to 3 per maund.

Peas.—Are sown in October and gathered in February; the ground may be turned over once prior to sowing; 20 seers of seed are required per beegah, and about 3 maunds may be expected in return, valued at, say 12 annas to 1 Re. per maund.

Dhall, Moosoor.—The soil requires eight or nine ploughings before the seed is put in the ground in October; the crop is cut and housed in February, and yields 4 maunds per beegah, valued at 10 to 11 annas a maund.

Dhall, Khissaree.—No preliminary ploughing is necessary for this crop; 20 seers of seed are sown per beegah; the yield being from 5 to 5½ maunds worth about 10 annas per maund.

Dhall, Mashkulaee.—Is sown in October and cut in February; requires no ploughing; 10 to 12 seers of seed are ordinarily sown per beegah, yield 2 to 2½ maunds, valued at Re. 1 per maund.

81. The following condiments are also largely cultivated :—

Dhunneah.—*(coriandrum sativum)* is sown in October, and gathered in January, or February. The soil requires five to seven ploughings previous to sowing down with seed at the rate of 5 seers per beegah, the yield of which is about 1 maund, valued at Re. 1-4.

Chillis.—Red Pepper (*Capsicum*). Is grown very largely in the western part of the Jessore District, especially between Jingergachee and Tirmohunee, on the banks of the Cobbaduk River; the fields require several ploughings before the seed is sown, in March and April. The crop requires to be kept very carefully weeded, and the earth round the roots of the plants to be occasionally loosened. ¼ seer of seed furnishes plants sufficient for one beegah, these are transplanted out into the fields when about one month old, and a little ash or manure put in with each. The crop is plucked in August to December, and the pods laid out to dry.

Long Pepper.—(*Piper longum*) Peepul is cultivated to some extent in the vicinity of Jenida and Kaleegunge of district Jessore. The plants produce nothing, however, the first year, after the seed is sown, and very little during the second; the yield of the third and fourth years average's, for good cultivation, from 6 to 8 maunds of seed per beegah. After the fourth year's produce has been gathered in, the plants are taken up by the roots, which are then dried and sold as medicine under the name of peeprah mool, or pepper root. The pepper is worth about 4 annas a seer, and is chiefly used by the Natives in fevers and rheumatism. The roots are sold chiefly for the western markets, finding a ready sale at Patna, Benares, Cawnpore, &c., where, it is said, they sometimes rate as high as Rs. 8 per seer.

Betel Nut.—(*Areca.*) Soopari is grown profusely throughout these districts, every village site of any standing being studded with these graceful trees. They are sometimes scattered indiscriminately about the village, but are more generally planted in regular plantations. Each tree yields on an average 100 nuts per annum, the value of which varies greatly. These trees thrive best in damp rich soil, and in places where their roots are well shaded. They do not appear to impoverish the land much, and admit of crops of rice or other grain being sown, and thriving on the same ground. The Natives, indeed, affirm that the trees are greatly improved, and bear more fruit, when paddy or rice is sown on the plantation. The wood of the betel is of very hard fibrous texture, and works up into lathes of great length, strength and durability, which are largely used for flooring of boats, &c.

SECOND DIVISION.
Great Swamps.

82. In passing down the Mudhoomuttee or Ballissur River, one of the great waterways through these districts, if the traveller leave the main route near the junction with the Attara-Banka (eighteen bends) River, and penetrate, by some of the numerous small navigable streams or Khalls, (as they are locally called,) into the interior of the country on either side, he soon finds himself lost in an apparently interminable waste of swamps and morasses, intersected by creeks in all directions, and all more or less affected by the tides, and filled with brackish or fresh water accordingly.

Changes in.

83. These marsh lands, as will be seen from reference to, and comparison of, the maps accompanying this report, are very gradually, but surely, undergoing a change, and silting up. In Rennel's time the banks of the older streams of the Cubbaduk and Bhoyrub appear to have been the only habitable tracts which had then been raised by nature above the general level of the swamps west of the Ballissur River, whilst a road, attributed to the Mussulmans, and of which portions still exist, offered the only route by which the great morass* to the east could be crossed on foot.

* Mentioned by Rennel, on his map, as being "impassable" by land in most parts.

84. Since Rennel's survey was made, numerous other streams or creeks, intersecting the swamps and connected with the principal affluents of the Ganges, have gradually raised their banks, above the general level of the marshes, and are now bordered by villages and hamlets. Of these streams the most remarkable and best known is the Attara Banka, which, connecting the Bhyrub and Modhoomuttee Rivers, forms the principal route for steamers during the dry season. The entrance to this stream from the Khoolnah side is shown on Rennel's map as the Allipore Khall, by which name, indeed, the southern reaches of this creek are known to this day. Here, too, man assisted nature, and by his industry, has greatly helped to extend the dry land, and consolidate the banks.

Streams through.

85. The first step taken, where a fair footing is obtainable on the banks of any fresh water stream, traversing these swamps, is to raise a good high mound to build on, from 10 to 20 feet above low water mark according to circumstances. The hole out of which the earth is excavated is then sometimes enlarged to form a tank for future fresh water supply, and the surplus earth, after providing for the banks of the tank, is used to raise the land immediately surrounding the house.

Reclamation of land.

86. Subsequently small water cuts are made, leading directly from the stream to the interior of the marsh, with the double object of draining the rice fields near the lodgment during the cold and hot seasons, and to help to silt in, and raise them, and thereby gain on the marsh during the rainy season, when every stream comes down from the Ganges loaded with silt. The small ridges round the rice cultivation in these low lands are at first formed of long grass, reeds and marsh plants matted together; these not only assist to retain silt, and, thereby to raise the ground, but the khets or plots being generally very small, they preserve the soil from the scouring action of surface currents during inundation.

87. In due time the single huts are succeeded by small hamlets, and as the ryots gain on the swamp, more tanks are dug and the soil is used to raise the adjoining fields. The scattered mounds and huts are subsequently rejected, and the community establish a village of a more compact form. The old mounds on which the first huts were built are then sometimes dug up and spread over the land adjacent; but more generally are left to themselves until the wind and weather gradually wear them down to the general level.

Population of.

88. Excepting along the banks of the larger water courses traversing these tracts, few inhabitants are to be met with.

89. Along some of the less frequented channels, the inhabitants are chiefly, if not wholly, fishermen, whose scattered huts, canoes, and nets are often the only sign of human beings to be met with. In such localities nothing meets the eye but a wide stretch of marsh land, where fields of reeds and long grasses, with their long silvery tufts waving in the sunshine, alternate with pools, or lakes of deep water, covered with all kinds of aquatic plants, which flower and sleep on the surface, and large expanses or islands of recently raised alluvium. These latter, when on

the edges of the marsh, offer great facilities for rice cultivation. The first step being to make paths across them, formed, as above-mentioned, of grass, reeds, weeds, &c., well matted together. These paths, though very elastic and somewhat difficult to walk on without practice, are, however, perfectly safe, and if a person can only keep his footing, there is no fear of being engulphed in the bog.

Birds, &c.

90. Myriads of wild fowl, king-fishers, cranes, pelicans and other aquatic birds are seen flying, swimming, or congregated in flocks, in all directions over these swamps and feeding on the small fish which abound in every pool and stream. Morning and evening, and often during the night, their cries alone break the monotonous croaking of frogs along the margin of the streams, or the ceaseless chirp of the grasshoppers and cicadœ on their banks.

91. During the heat of the day, and at flood tide, the silence that reigns in these marshy solitudes is deep and profound, and save the occasional hail of a fisherman, or the shrill cry of the fish eagle, as he launches in pursuit of a gull to rob it of its prey, not a sound is often to be heard. The very reeds and grass seem overpowered by the heat and glare of the sun, whilst not a breath of air disturbs them. At such times the atmosphere, always heavy and oppressive, becomes, in the general stillness, most suffocating and sickening.

92. As the ebb makes, however, the scene soon changes, and all becomes life again. Myriads of fish hawks, gulls and other birds circle over the spots left by the receding tide, and follow in its wake in pursuit of small fish. Whilst adjutants, marabouts, cranes of all kinds, pelicans, and other waders stalk leisurely along, darting their beaks right and left into the many pools, where they find an ample store of small fry of all kinds left by the falling waters. The fishermen are now all alive and busy catching the various kinds of fish entangled in the nets which they have previously staked along the banks of shoals, or at the entrances of khalls. The rice cultivators also go to work the moment the water has sufficiently receded, and throw up fresh bunds and pathways to dam out the tidal waters, and enable them to prepare more land for rice, or repair leaks and breaches in those already existing. Occasionally men may be seen artificially raising the reclaimed land still more by carrying and throwing in earth from the adjacent lower parts of the bheels.

Fires in.

93. In February, March, and April, (especially in the latter month), as the water in the bheels gradually becomes lower and lower, and the grasses and reeds wither and dry under the increasing heat of the sun, the proprietors of the marsh lands fire the jungle in all directions, to have the ground in readiness for the coarse rice (burro dhan) crops that are grown in these tracts. The smoke arising from the fires added considerably to the difficulties, otherwise experienced, in running survey lines across the marsh lands.

Huts in.

94. Throughout the swamps the huts of the inhabitants are constructed on high mounds well raised artificially above the surface of the spongy banks of the streams that traverse them. Wherever the current is strong, and likely, during floods, to injure the basement of the mound, precautions are taken to preserve it, by erecting at its foot, on the up-stream side, a strong fence of bamboos, or reeds, and grasses

intermixed. This fence also serves the double purpose of a stake net, during high tides, during which prawns and small fish become entangled in the meshes.

95. All mounds of any standing have, usually, date and other trees planted on them. These afford shade, during the extreme heat of the day, for the few cows or goats the owner may possess; and at the same time they help, in some measure, to purify the air, and absorb some portion of the miasmatic vapours that arise from all sides.

96. In some parts the swamps present a most peculiar appearance, from the numbers of long bamboos and low stakes of wood, which are dotted thickly about them. These are placed there, from time to time, by the fishermen and fowlers, who frequent these tracts, either to support their nets on whilst drying, or to attach them to when extended for the purpose of catching birds or fish.

Trade in bird feathers.

97. Numbers of water-fowl are caught here annually, chiefly for the sake of their plumage, the feathers being mostly carried to the Calcutta market, where they are used for covering hats, making tippets, trimming dresses, &c.; the soft down from under the wings is used for the same purpose, and for stuffing pillows. The birds most sought for are the marabouts, king-fishers, flamingos, several kinds of cranes, pelicans and wild geese.

Bird catching.

98. One mode of catching wild geese in these swamps, on the shoals of the Megna, and wherever in fact there is a good rise of the tide over shoals, is as follows: The fowlers note well the spots first resorted to by these shy and wary birds after their return from the feeding grounds; they then select those spots that are covered with water, or nearly so, at high tide, and choosing a night when the flood tide makes, a little after dark, they plant stakes along the upper part of the sand bank, or mud-flat, and extend their nets horizontally on bamboos or wooden stakes.

99. Towards evening the geese arrive, and invariably alight close to the edge of the water and commence bathing, washing, and dressing their plumage, retiring higher up the bank as the tide advances, until at length driven to take flight by the rising water, or by the shouts of the fowlers, they rise and are immediately entangled in the nets spread for them.

100. The moment the fowlers are apprised by the clamour of the geese and the flapping of their wings that they are caught in the nets, they put off in their boats for the place, and either kill them with short bamboo staves, or take them alive for the different markets. They, however, usually kill them on the spot, and strip them of their feathers.

101. Another mode of catching the smaller birds is the following, and is equally successful in taking birds on trees. The fowler provides himself with a number of thin taper bamboos, fitting one into another like a fishing rod. Arming the small end with cotton and a sufficient quantity of bird lime, he moves quietly through the reeds and rushes of the jheel, and on nearing any birds either swimming on the water, or perched on the long grass and reeds, he fits on piece after piece to the one armed with bird lime, until it is of sufficient length to admit of his touching and entangling the bird with the limed end. The men who practice this methed are exceedingly expert and seldom fail in their catch.

102. Besides being remunerative in fish and fowl, these marshes afford employment to many of the poorer classes in mat and basket making; in cutting grass and hooglah (a broad leafed flag) for roofs, &c.; and in collecting mussels and snails, from the shells of which the lime is made which is eaten by the natives with paun and betelnut. Large quantities of these crustacea are annually collected from the bheels, and laid out on the banks of the streams until decomposition enables those who collect them to extract the inmates more easily from their shells. The odours arising from these putrifying heaps by no means add to the salubrity, or the pleasantness of a trip through these localities. Excellent clay is also found in many parts along the banks of the streams from which the potters make the largest kind of earthen pots for pickling fish, and holding grain or water, measuring ordinarily from 4 to 4½ feet high, by 9 or 10 feet in circumference.

Basket making.

103. These Jheels, and the streams that traverse them, afford also an inexhaustable supply of various kinds of fish, crabs, and prawns to the various local markets. At certain seasons of the year no small quantity of the fish is carried to the Calcutta and other markets or hauts along the canal or Soonderbuns routes, by which all the traffic in boats is carried on between the eastern districts and the metropolis. The fishes in this case are stored in reservoirs constructed in the middle of the boat, and closed by a grating at bottom, through which a constant and fresh supply of water is afforded. The boats are well manned and swift, and are pulled day and night. The fishermen cast the dead and dying fish overboard en-route, and by these means keep a very fair percentage alive, and in fair condition for market.

Fisheries.

104. The principal fish are the rooee, soulee, silling, cutla, bhola, tengree, boolee, eels, bansputtee, pubda chingrees, crabs, mussels, kuwaye, singhee, &c.; the smaller kinds largely predominating. The kuwaye is greatly esteemed by certain of the Bengalees, as a restorative after sickness. It is administered in the form of soup, or broth, until the sick person is sufficiently strong to eat it well fried. It is a small dark colored greenish fish, purse-mouthed, with two long spines projecting from the upper mandibles, and sharp spines on the gills and upper fin, which latter is very large in proportion to the size of the fish.

105. In some of the swamps, especially in those of Backergunge, the surface growth of aquatic plants mixed with drift weeds, grasses and burro dhan stalks, increase annually, and in progress of time a crust is formed capable of supporting human beings, and on which rice is cultivated. Small floating *patches* are thus formed, and the natives assert, that in very strong blowing weather these are sometimes carried from one side of the bheels to the other, and are a cause of great dispute. This story was corroborated by a Government official, whose duties often took him into these swamps. He mentioned also, that the first time he found himself on ground of this kind, and being totally unaware of its nature, he was greatly alarmed at feeling, as he thought, the earth moving beneath him, and still more astonished when, on seeking information from the inhabitants, he was told "it was only the tide coming in." It is not uncommon for the owners of these floating fields to make holes through them, and catch the fish that may be in the vicinity, and if so are immediately attracted by the light.

Floating islands.

106. Why this portion of the country, in the very centre almost of the delta, should present these deep hollows, whilst all around the country has been comparatively more or less raised and levelled, is a difficult question to

Causes of the swamps.

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answer. By far the best suggestion I have seen is that given in a paper written by Mr. James Fergusson, F. R. S., and published in the Quarterly Journal of the Geographical Society for August 1863. That gentleman speaking of the action of the tides at the head of the Bay of Bengal, says: "There is every reason to suppose that the action of these tides has been constant and uniform ever since the Bay of Bengal took its present shape, and, consequently, it is probable that there may have always existed a bar, or spit, on the neutral line between the oceanic and river forces somewhere not far from where the Soonderbuns now are. If this were the case the deltaic plains would then have been as hinted above, a great lagoon, or inland sea—a circumstance which would tend very considerably to accelerate the deposition of mud in them, and thus account for the rapidity of some of the changes which might otherwise seem strange."

107. Again he says: "The true base of the delta is the neutral ground between the 5 and 20 fathom lines" * * * *

"Inland there is another neutral line parallel to this in the tract of high land *extending from Calcutta to Backergunge, and when the delta is complete it will reach *Setacoond*; this marks the boundary where the tidal forces are stopped by the river's action, and where, consequently, a certain deposit takes place. Behind this inland barrier there exists an immense tract of jheel country in the districts of Jessore and Fureedpore, (continued also into Backergunge, where the largest bheels exist at present, and 24-Pergunnahs") * * * *

108. This hypothesis appears a highly probable one indeed, and since, as Mr. Fergusson points out in the same paper, "still water seizing the silt forces the river to deposit it exactly where it is most useful in forming a barrier against further incursions," it is easy to perceive that the Ganges coming in from the north-west, the Brahmahpootra, and Megna from the north-east, the Natore rivers from the north, and those from Chota Nagpore and Tipperah Hill Tracts from the west and east respectively, their silt would in the earlier stages of formation seawards, have been deposited all round this lagoon or inland sea. The river gradually gaining ground, and occasionally, as in the case of the Bhoyrub and the Cobaduk rivers, cutting across and raising the country on both sides, and so sub-dividing the lagoon, but finally leaving these deep central depressions to be dealt with hereafter, when, once more quoting Mr. Fergusson's words, "there will be very little jheel country left in the western half of the delta, and the task of the Ganges ("as regards the present delta") will then be completed, with the exception of a little smoothing and filling here and there."

Swatch of no ground.

109. If reference be made to the map, it will be seen that this lagoon or inland sea spoken of by Mr. Fergusson, of which the morasses are the only present traces remaining, must in the earliest years of the deltaic formation have been in a very similar position, relatively to the then coast line, as the "swatch of no ground," and the deep soundings east and west of it, now are, in relation to the present southern coast line. It is not therefore improbable, that the causes, whatever they may be, that operate at the present moment in keeping this immense hollow unfilled up, may also have operated in former days over the portion of the sea bottom now represented by these swamps, and that a similar depression then existed under the present site of the great swamps.

* Comparatively speaking only, in Jessore and Backergunge, as in these districts, the so-called high tract is flooded by every tide.

110. The soundings entered on the latest map of these districts accompanying this report have been taken from Captain Lloyd's marine survey of 1835-36. Bottom was found in several places in the swatch at 180, 200, and 300 fathoms; and had better means of deep sea sounding been available, no doubt the exact contour of this remarkable depression would have been easily and clearly ascertained and defined. It is greatly to be regretted, the attempt was not made, at any rate to the fullest extent of the sounding apparatus of that day. We can only hope that when it again becomes necessary to make a corrected chart and its soundings, the means of duly ascertaining the depth of the swatch, its extent southwards, and the composition and general slope of its steep shelving sides and bottom, may not be neglected.

3RD DIVISION. Soonderbuns.

111. Passing on southwards from the 2nd division, or great central marsh tract, of the districts under discussion, we come to the 3rd division, or zone which includes the Soonderbuns' forests and clearings, and the tract of highland, or interior neutral line of the delta seawards already alluded to. It is along the northern ridge of this high land, that up to the present time, and since that of Rennell and Martin, the industry and wants of man have generally extended cultivation, and peopled the country.

Aspect of country in Rennell's time.

112. Rennell's map shows that in the years 1764 to 1772 very little land had been brought under cultivation either over the marsh tracts, or to the south between them and the Soonderbuns. In fact, the uninhabited marshes and Soonderbuns were then united between the Jubboonah river and the Baroo (now Roopshah) khall, or Pussur river. Whilst between this latter and the Hooringotta, where the action of the Bhoyrub river had raised the land somewhat, a small belt of inhabited country is shown of only 8 miles in average breadth.

Changes since then.

113. Since then the marshes between the Juboonah and Pussur rivers have nearly lost their exclusive characteristics of low lying uninhabited swamps, are now dotted over with villages, and are being fast converted into first-rate rice lands. The change is perhaps most remarkable over the whole of the old marsh tract west of the Cobbaduk; over which, and to the south also, very nearly as far as its junction with the Culputtooah river (the "Pongaseer" of Rennell), cultivation and villages now exist, where a century ago all was waste.

114. East of the Pussur, and between it and the Hooringotta, which divides Jessore from Backergunge District, cultivation now extends as far south as the Kunna and Juderra or Jeoderra river of Rennel, and along the right bank of the Hooringotta to within 10 miles of the junction with the Puncusseah river, or 20 miles from the coast line of the bay. The approximate area of land in this portion of the delta alone, thus reclaimed from swamp and forest, amounts to about 432 square miles.

115. Down the left or eastern bank of the Cobbaduk, cultivation once extended, according to tradition, far below the solitary village of Gobrah and of Soonderbun lot No. 212. Some ruins of masonry buildings, the traces of old court yards, and here and there some garden plants and shrubs remain to the present day in lot 211, close to the khall which separates it from lot 212, and attest in some measure the truth of the legend. But by whom the buildings were erected, or when inhabited, no one seems to know. In those days, probably the

Cobbaduk communicated at all seasons of the year directly with the Ganges; its water would then have been fresh instead of brackish as it is at present; and there would have been every prospect, also, of its banks being still further raised and consolidated. The temptations therefore held out to men to extend cultivation in that direction must have been as great as they are at present on the banks of the other fresh water rivers of the delta. But long before Rennell's day other streams had interfered with, and cut off the Cobbaduk from the Ganges, and left it what it now is, a mere tidal creek, with no head way of fresh water. Fresh deposit on its banks must then have ceased to a great extent; the rains would gradually have washed away the upper stratum of soil, and lowered the general level; the place would soon have become sickly, and finally forsaken by all but those whom dire necessity kept chained to the spot. Of all the villages that may once have existed over this portion of Jessore, the miserable village of Gobrah alone remains. The area of this village has also decreased, and the cultivation of rice does not extend to within two miles of where it once did. The soil is gradually becoming more and more impregnated with salt and unfit for crops, and were it not for bunds and the fresh water that drains into and passes down the Cobbaduk in the rains helping to wash out the salt of the soil near the banks, Gobra would soon be deserted also. As it is, the Cobbaduk appears to be fast silting up between Gobrah and Chandkhallee khall; if it does so much more the whole flow of fresh water will probably pass by the Chandkhallee khall and Menus, &c., into the Seep Shah Aga to the east. In Rennel's time the forest appears to have regained on the cultivation, and to have extended north of the Chandkhallee khall and Menus river; subsequently it has been again reclaimed to a short distance south of these creeks, and down along the Cobbaduk to the Coyra Nuddee; but at the time of survey the inhabitants of the villages on the confines of the jungle complained bitterly of the constant attacks made upon them and their cattle by tigers. Many ryots, they said, had recently left the clearings in consequence, and more talked of soon doing so. In several places the villagers guarded the doors of their huts at night with strong nets to prevent the ingress of these animals; and they declared several persons had latterly been carried off and devoured for want of this due precaution.

Wild animals.

116. During the progress of survey operations in the Soonderbuns of Jessore and Backergunge, no instance occured of tigers molesting our parties, though it was not uncommon to find traces of these animals round the stations that had recently been cleared for Theodolite observations. Buffaloes on several occasions attacked, and put the survey parties to flight, but save a tumble, or two, no accident fortunately happened to any one. Twice we had to kill solitary buffaloes, that had been chased out of some one of the many herds of wild buffaloe roaming through the jungles, and had located themselves in patches of jungle, through which survey lines had to be cut. Wild hogs were occasionally troublesome, and one day the mate of the steamer employed by me when surveying the Eastern islands Dommanick, &c., was suddenly charged by a boar and obliged to climb the nearest tree, unfortunately for him an exceedingly thorny one. He declared he did not feel the thorns in getting up; but his descent, after the boar had left the spot, was by no means so easily effected. In the absence of the pig, the presence of the thorns was very unmistakeable, and the unfortunate mate remembered his adventure for several days after.

117. Alligators and snakes were often seen, but they invariably disappeared on being disturbed. Higher up the creeks, and in the more populated parts of the Soonderbuns, however, the alligators become very troublesome with the setting in of the hot weather. After

the beginning of March it is not safe to bathe in, or take water from, the streams, except at places specially protected by palisades of bamboos, or wooden stakes. Even this precaution fails at times; instances have been frequently known of alligators entering within the palisades, from the land side, during the night, and in the morning the first notice of the hidden danger has been the struggles and shrieks of some unfortunate being, seized and dragged under water by the huge reptile.

118. Sharks also are by no means uncommon in the larger creeks and estuaries. Their sharp and prominent dorsal fin may often be seen cutting through the still smooth surface of the water in some sheltered inlet, sole mark of the danger that lies beneath.

Old ruins.

119. When the survey was progressing along the borders of, and within, these wildernesses of forest and creeks, constant enquiries were made in the endeavour to discover more ruins or remains of former inhabitants, and if possible attest the truth of old legends regarding large portions of the present Soonderbuns having been populated in former ages. But all enquiry failed; nothing could be found save the ruins already mentioned on the banks of the Cobbaduk river. The mud forts entered on Rennell's map on the banks of the Rabanabad or Goolacheepa river, do not exist now-a-days; nor could we glean any information regarding them. Excepting the country bordering on the Pussur river, if ever the Jessore portion of the Soonderbuns were populated, lower than the present line of forest boundary, which I much doubt, it must have been, when some large branch of the Ganges conveyed fresh water much further to the south than the present streams do. The absence of fresh water beyond a certain distance, is, I believe, fatal to any very profitable extension of cultivation.

Cultivation.

120. On Rennel's map an entry is made to the south of the Backergunge District, across that portion of the country between the Goolacheepa and Boorissur rivers, showing it to have been depopulated by the Mugs* and to have again relapsed into jungle; since then the reclearing has progressed slowly up to the present time. When the Soonderbuns forest boundary was surveyed by Lieutenant Hodges in 1830-31, he found the country to the east cleared and inhabited, about as far down as a line drawn from the junction of the Kookooa Dhow and Badoora river north, to that of the Naloua river and Rabanabad channel south; to the west, all was dense heavy forest. It has since then extended very much to the southward and westward, as shown on the other map, and clearings now exist, and are progressing rapidly, over the whole of the Backergunge Soonderbuns. Care should, however, be taken eventually to preserve a broad belt of forest between the clearings and the bay, to protect them from the encroachments of the sea during storms.

121. Traces of former inhabitants in the Soonderbuns were also found when tanks were being dug on the Morellgunge estate, at the junction of the Pungoochee (Gudina or Baricolly of Rennel) and Ballissur rivers. Remnants of old pottery, curry stones, &c., were thus brought to light. But there was nothing, I believe, to show that these had not belonged to migratory bands of Mug cultivators, wood cutters, or fowlers, &c., rather than to permanent settlers. Towards the south many clearings exist on the Soonderbun islands nearest the sea; these appear to be made chiefly, if not wholly, by Mugs. These people cross over from the Arracan Coast,

* This happened about 1581.

run up one of the large estuaries a short way, enter thence some of the small khalls, and penetrate into the forest far enough to avoid risk of detection by any passing boats; they then haul up their boats, clear the forest and cultivate rice. If discovered, they never, I believe, return the following year to the same location. In passing through the Soonderbuns from Calcutta to Backergunge in 1862, by some of the more southerly creeks far below the usual steamer route, many small clearings were thus seen between the Roy Mungal and Murgatta Rivers.

Subsidence of country.

122. What maximum height the Soonderbuns may have ever formerly attained above the mean tide level is utterly unknown; that they ever were much higher than at present is, I think, more than doubtful. But that a general subsidence has operated over the whole extent of the Soonderbuns, if not of the delta entire, is, I think, quite clear from the result of examination of cuttings or sections made in various parts where tanks were being excavated. Appendix (III) represents a carefully measured section of a side cutting of a tank situated about one mile to the west of the steamer coaling station at Khoolnah, in the Jessore District, and about 12 miles north of the nearest Soonderbuns lot No. 222. Here at a depth of 18 feet below the present surface of the ground, and parallel to it, the remains of an old forest were found, consisting entirely of soondri trees of various sizes with their roots, and lower portion of the trunks, exactly as they must have existed in former days, when all was fresh and green above them; whilst alongside them lay the upper portions of the trunks broken off and imbedded in a thick stratum of old half decomposed vegetable mould 19 inches in depth, from which, when first exposed, leaves, grasses, and ferns, could readily be separated and detached. Below this were other thinner strata of clays and vegetable mould corresponding to the Calcutta peat, whilst above was a stratum of argillaceous sand passing into stiff blue clay containing numerous shells. One of the trees was found projecting far into the upper stratum of blue clay. Many of the trees were quite decomposed, whilst in others the woody fibre was nearly perfect.

Section at Khoolnah.

123. A wood cut of this section appears in No. XXXIII of 1864 of the Journal of the Asiatic Society of Bengal, as an accompaniment to a note communicated to the Society by Mr. H. F. Blanford, A. R. S. M., F. G. S., on a tank section at Sealdah, Calcutta. At Sealdah the stools of soondri trees were found "in situ at various levels, at least as far down as 30 feet from the surface, or 10 feet below the peat," thus agreeing very nearly with the depth at which trees were observed at Khoolnah; a copy of the Sealdah tank section is given for ease of reference. (Appendix No. IV.)

124. Mr. Blanford commenting on these submerged strata, says: "The point of chief "interest in the Sealdah section is the occurrence of tree stumps in situ at the depth of 30 feet, "and the evidence afforded thereby of a general depression of the delta; the trees in question, "specimens of which I submitted to Dr. Anderson, were pronounced by him to be soondri, a "species, the range of which, as regards level, is restricted to from 2 to about 10 feet below "high water mark. It grows only on mud, or where the surface is not too frequently flooded "to allow of the growth of grass, but at the same time it requires that its roots be exposed to "the air for at least several hours of each tide. It is evident, therefore, that the trees at Sealdah "could not have grown at the level at which they are now found, but that unless low water "level in the Hooghly be 18 or 20 feet above that of the outer Soonderbuns (where the soondri

" now grows) there must have been a depression of the land surface to a depth of several feet " since they grew."

"*. * * I think therefore we may safely infer, remembering the range of the "soondri, and that it never grows to within 6 or 8 feet of the lowest tide levels, that there "must have been depression of land to not less than 18 or 20 feet, since the trees grew, the "stumps of which are now found at the bottom of Sealdah tank."

" Hence the tree stems at the bottom of the Sealdah tank are 30—16·49=13·51 feet below "the mean level of neap low tides.

" If at the fort* the wood found above and below the peat bed be in situ, as I think " most probable, there must have been a depression at this spot of not less than 46 to 48 feet; "but whether the two land surfaces thus indicated were contemporaneous, and the relative " depression consequently unequal to the extent indicated by these figures, the evidence before " us is, I think, insufficient to establish.

" From these facts I infer an average depression of the Gangetic delta of 18 or 20 feet " since the land surface existed, which is marked by the soondri trees in situ. It is note- " worthy that the trees, in all the sections I am acquainted with, are restricted to a vertical " thickness of from 8 to 10 feet, and that the strata above, though frequently full of fragment- " ary plant remains and sometimes fresh water shells, show no indications of former land sur- " faces. This indicates not only the uniformity of the depression but also that it was every- " where more rapid than would be compensated for by deposition of sediment."

125. Again in the *Calcutta Review*, a writer on the same subject thus expresses himself: " If we consider the unsubstantial nature of the foundation of the Soonderbuns, which, at a " distance of only 120 feet from the surface, consists of a bed of semi-fluid mud 40 feet in " thickness, and then remember the terrific convulsions that have at different periods shaken " the delta to its deepest foundations, we must not be surprised to find that the liquid mass, " unable to support the superincumbent weight, has repeatedly bulged out seaward, reducing " the level of the delta, submerging whole forests, together with their fauna and flora. That " forests now lie under the Soonderbuns we have seen with our own eyes; in excavating a " tank at the new town of Canning at the head of the Mutlah, large soondri trees were found " standing as they grew, no portion of their stems appearing above ground: their numbers " may be imagined when we state, that in a small tank only thirty yards across, " about 40 trees were exhumed ten feet below the surface of the country, their timber " undecayed, showing that no very great period of time has passed over their submergence. If " the present level of their roots could suddenly become the level of the country, the whole " Soonderbuns would be under water. At a lower level than these trees, beds of a peaty " mass composed of decayed and churred wood is pierced in Calcutta, Hooghly, Dum-Dum " and elsewhere, at a depth varying from 8 to 80 feet. At Dum-Dum we have pierced it in

* Mr. Blanford here alludes to the borings made in Fort William.

" NOTE.—The mean height of the sea level above the Calcutta datum line of Kydd's dock site is 9053 feet; the mean height of map low tide levels above the same datum line is 6·51 feet. The height of the ground surface of Sealdah above the datum line is 22 feet, and therefore 16·49 feet above low tide level at Kedgeree.

" digging a well at 9 feet, and a little further to the east of the station at the end of the Artil-
" lery range in excavating a tank in a Baboo's garden, the same stratum was pierced at
" 12 feet."

Cause of subsidence.

126. The general depression may have been caused partially by the continually increasing weight of the superincumbent earth and forest; but the argument in favor of its not being wholly so, put forth by Mr. Blanford, appears to me incontrovertible. It is more probable that it was caused suddenly during some great earthquakes, and the fact of all the trees being, as a rule, broken off short, and none being found standing at Khoolnah or Sealdah might, in that case, be accounted for, by the enormous wave that such a subsidence would have rolled in from the Bay over the Soonderbuns, destroying all in its path. Or supposing the subsidence not to have been general over the whole tract at once, and only sufficient at first to have submerged the roots below low tide level, and so killed them, all would have dried up as they stood, and succumbed to some one of the cyclones that must have subsequently swept over the tract. The latter assumption seems likely, because whilst at Khoolnah and Sealdah the trees were all broken short off close to the ground; at Mutlah, which is situated between these places, they are said to have been found intact, and unbroken, which could not have been the case had a great wave, caused by the sudden subsidence of the country, swept in from the bay over the sinking forests; in that case Khoolnah, Mutlah, and Sealdah, supposing the submergence general, would have been exposed, and suffered alike, and the trees would have been equally decomposed in all places. The fact of their not being so, shows clearly I think that the subsidence at Khoolnah was prior to that at Mutlah, in the first place the trees being mostly decomposed, in the second not so. All is pure conjecture, however, and the causes may have been very different.

Sea coast and sand hills, or dunes.

127. Approaching the sea, the general level of the surface of the soil rises very gradually, until, reaching the outer islands, it is above ordinary high tide level. This is caused by the silt which, during the south-west monsoon, and especially during the months of May and October, is deposited over these islands by the heavy swell which, at that season coming in from the bay, charged with earthy matter stirred up from the flats outside, flows for several miles inland, and floods the most exposed islands. To the extreme east beyond the Hooringotta River, on the open coast of Chaplee, and beyond it again on the still more exposed coasts of the Rabanabad islands, this elevation is, fortunately for the inhabitants, much more marked and determined. Here, nature has raised a line of dunes, or sand hills varying from 20 to 60 feet in height, which present an impassable break water to the waves. During the great Cyclone of 1864 a similar line of dunes on the Midnapoor and Hidgelee Coast protected that portion of the country from the effects of the storm-wave, the effects of which were so disastrously felt, and caused such frightful and wide-spread destruction over the country as far as Koelah Ghat on the Roopnarain, and Atchecpoor on the Hooghly River, and between it and the Mutlah.

Formation of dunes

128. The theory of the formation of these dunes is thus described by a French author in " La Revue des deux Mondes":—

" The various currents of the ocean in their passage along the coast push before them the
" debris of rocks reduced to a state of fine sand by the constant action of water. The heavy
" rollers constantly stir up the soft bottom of the shore, and charged with the particles spread

" them over the beach ; at low tide the upper molecules of sand become dry, and ceasing to " adhere to each other, are carried on towards the land by the sea breezes ; these form the " nucleus of the dune. If the land were quite flat towards the interior of the country, these " particles of sand, cast by the waves above the sea level, and carried inland by the currents of " air from the ocean, would spread themselves over the ground in uniform layers, but the " small inequalities of the surface prevent this. Plants and other things project from the " soil, and oppose their onward progress ; such small obstacles suffice to determine the birth " of the sand hills, by obliging the wind to part with the little cloud of dust, arenacious or " silicious, with which it is charged. The horizontality of the shore is thus broken, and ranges " of sandy knolls, soon to be converted into larger dunes, commence to make their appearance.

" Once formed the little hill cannot help increasing. Each successive sea breeze brings " more sand, which mounts in its turn to the top of the hillock, and then sliding down on the " other side inland, forms a talus of ever increasing breadth. Each time the crest breaks, " the sand rolls down, enlarges the base, and gains on the land of the interior."

129. On the sea coast of Bengal, the rapid vegetation soon tops the dunes with grass, and stops the rapid progress that they would otherwise make towards the interior of the cultivated country. Those on the south of Rabanabad island are covered with a thick growth of trees, but whether these grow spontaneously, or were planted by the inhabitants, I was unable to learn. On the mainland at Chaplee, on the other side the Rabanabad channel, however, the dunes are topped with small bushes and grass, and have no trees growing on them ; whilst beyond them inland, and on the other side of a grass sward, varying in breadth from ¼ to ½ a mile, rises a forest of gigantic trees.

130. These sand formations only exist on such parts of the coast as have been cleared of forest, or where none has yet made its appearance.

Coast protected in parts by forest trees.

131. On the outer islands and parts of Rabanabad island where forest once existed to the waters edge, a belt of trees has been carefully preserved by the cultivators as a break water, varying in depth according to the exposure of the situation. It is hardly necessary perhaps to remark that where a belt of forest exists no sand hills ever form. In this case, nature having no present occasion to make further exertions for the conservation of the land, remains quiescent.

Extension and consolidation of Soonderbuns.

132. The consolidation of the island formation at the eastern mouth of the Ganges and Megna, has advanced very considerably since the days of Rennell. Between the main land of Backergunge and the island of Shahbazpoor, a well defined and comparatively firmly banked river (the Tetoolea) now exists ; in his day this was a broad estuary studded with half-formed and ever-changing islands. Indeed, the present tract of country known as Deccan Shahbazpoor no longer bears any resemblance to the island of Shahbazpoor of Rennel. It now includes that large island and the whole of the smaller ones called by Rennel Charra Luckipoor, and may now be fairly claimed as part of the main land. The rapid growth of the delta seaward on this side the bay may be further seen by a comparison of the soundings made by Captain Lloyd, Marine Surveyor in 1835-36 in the channel opening out from the Tetoolea River between the Dommanick islands and the main land, with the state of the

same shoals and sand banks as found by the Survey of 1861-62-63, where in 1835 Lloyd gives depths of water over the shoals varying from ¼ to 5 and 6 fathoms at low water, the survey in 1862 found banks high and dry at ¼ and ⅓ ebb.

Changes since Lloyd's Survey of Coast.

133. In attempting to run the steamer *Teesta* across from Maya Chur to the back of Kalee Chur, we made for a channel between it and Kajul Chur, where the least depth of water according to Lloyd's Chart had been ½ a fathom at low water. We reached the channel entrance at almost the top of a high spring tide, and ran from 2½ fathoms to 4 feet in less than two steamers length; took the sand and lay there until the next flood; the Captain had rightly hit off the channel, such as it then was. The sands above and below our position showed themselves above water immediately after we grounded; the hollow we lay in was dry at ½ ebb, and we found ourselves ultimately about 4 feet above the level of low water; the rise of tide being about 10 or 11 feet. Lower down to the southward, the differences were less marked, and the formation of sands and channels were pronounced by the Captain of the *Teesta* steamer much the same as shown on Lloyd's published chart of the soundings of that coast. The depths of water, however, had decreased greatly in parts.

134. Judging from the change that has taken place during the past 30 years, a similar lapse of time will probably find the islands of Kalee Chur, Kajul Chur, and Nazir Chur joined together and consolidated with Kooralea and Rungaballee to the south into one large island extending eastward to the edge of the great sand bank on which we took the ground. Indeed, it is most probable by that time, that this new formation will have entirely lost its exclusive island character, and have become part of the main land. The Kajul channel to the west of the islands is rapidly silting up, whilst the shoal to the north, running right across the channel and connecting Kajul Chur with the main land, had nowhere more than 4 feet of water on it in 1862 at the top of the flood. Unless therefore some great change takes place in the Tetoolea River and alter its present course from the east to the west of these islands which, in the present configuration of the country to the north, is most improbable, the change seems certain.

135. Since Lloyd's time also several miles of land have formed and consolidated on the south of Deccan Shahbazpore or Lubadar island as he names it, and this accretion is rapidly extending and consolidating itself. Ere many more years pass the embouchure of the Teetooleea river into the Bay of Bengal will probably be nearer the island of Kookramookra than Badoora. In fact, as stated by Mr. Fergusson in his "Delta of the Ganges," "the eastern half (of the Soonderbuns or delta of the Ganges) "is in a state of rapid change, having remained "behind, I believe, principally in consequence of the absorption of the Brahmapootra's silt by "the Sylhet jheels; but probably in little more than a century or two from this time "(1863), the gap may be repaired and the Sonderbuns bounded by a nearly straight line east "and west."

Varying levels of surface

136. The Soonderbuns of Backergunge are decidedly higher than those of Jessore, especially of that portion lying between the Cobaduk and Pussur Rivers, which I conceive to be the lowest tract of these extensive forests between the Hooghly and the eastern mouths of the Ganges. Nor can we expect that portion of the country to rise beyond its present low swampy level, until the task of the Ganges

in the Backergunge District is complete, or until, and as also anticipated by Mr. Fergusson as a possible contingency, the Brahmahpootra forces the Ganges to retrograde to the west, and either re-open up some of its old beds, or empty itself through the levels of the central marsh tracts.

Changes still further east.

137. Further to the east and beyond the island of Shahbazpoor and the Dommanicks, great changes have been and are still taking place. Mr. Robert Smart, Revenue Surveyor, who has just completed a survey of this portion of the delta, in forwarding me a trace map of the tract, thus mentions the present state of these formations :—

" The smaller islands and churs are constantly changing their position, and appear to be ascending the stream. They are also subject to continual diluvium, so that whilst accretions form on one side, diluvium to some extent takes place on the other; the general tendency is to shoal up the beds of rivers. It will be remarked that the khalls in Sundeep, Bidon, Siddee, Hattyah and Shahabazpoor are navigable for boats *only during flood tide;* during the ebb they are left dry. In fact, the river beds are fast filling up.

" The khall leading to the station of Noacolly can be entered only at flood tide; boats are obliged to anchor in the middle of the channel between the main land and Hattyah, and wait for the tide.

" The rivers between Siddee, and Bidon, and Sundeep are dry during ebb tide. The passage between Siddee and Becotshoo Chur is closed. Between Hattyah and Sundeep the river is studded with sand banks and bars, and navigation is dangerous.

" The natives record the fact that the sea once extended up to Noacolly, the place was then called Soodeeram.

* * * * * * * *

" The operations of the Megna River are materially assisted by the action of the sea. The action of the bore is very striking on the eastern side of Hattyah, where the self deposits are scooped out and the island has suffered considerable destruction; villages are swept away in a few hours; bars and sand banks are produced, which in many cases act as barriers to the sea, and prevent further encroachments.

" Kalee Chur to the south of Sundeep is a new formation, partly covered with jhow jungle and grass.

" Lubbeedecha Chur to the south of Nulcheera, though a small island, is covered with large forest trees. Balam boats from Chittagong carry away large quantities of the wood in the months of January, February and March.

" Falcon Chur and Toom Chur have been separated from Hattyah.

" The island of Maunpoora is fast disappearing, and will soon be submerged beneath the waves.

"Though the incursions of the sea occasion disastrous results, the beds of the rivers, both large and small, are gradually but surely rising, and will doubtless at some future time change from water to dry land."

"Some time ago I noticed in some newspaper that the island of Sundeep was, in the year 1830 or 1833, submerged beneath the waves; this had no foundation in fact. The oldest inhabitants of the island, men who have never left the place, know nothing about it. The mosques on the island are said to be 200 or 300 years old."*

138. In other words, the great rivers of Bengal are now busily, and fast, completing their task of building up and consolidating the eastern extremity of the delta.

The bore in the joint Berhampootra, Megna and Ganges, Eastern Channels and in the Fenny River.

139. A tremendous bore rolls into and up the estuaries formed by the united Ganges, Berhampootra and Megna Rivers; it appears, however, to be highest, most violent and dangerous at the junction of the great and little Fenny Rivers, due east of the Civil station of Noacolly. Mr. Robert Smart, Revenue Surveyor, thus describes the action of the tidal waves producing the bore:—

"At the upper part of the bay, the tidal phenomena are scarcely observable. At the mouth of the Fenny River and to the north of Becotshoo Chur, between Siddee and the main land, the appearance is remarkable. With a strong southerly wind the largest waves are of course produced.

"The tidal wave flows up the Sundeep channel passing into the Rivers Fenny and Baumnee with great rapidity. This wave is met by a counter-current from the west of Sundeep Bidou and Siddee; the water is then dashed impetuously on past Toom Chur, the northern part of Hattyah, and exhausts itself a little to the north of Bhuwaneegunj Khall, the northern limit of the bore wave.

"The wave generally appears like a white wall of from 14 to 20 feet in height; the velocity I should judge to be about 15 miles an hour. The height to which it rises, is greater in the small channels than in the open estuary between Sundeep and Hattyah. Its maximum is just as it dashes into the Fenny River.

"A powerful current runs between Manpoora and Shahbazpoor, where the channel is very narrow and deep. It sweeps along the eastern side of Shahbazpoor, after passing Maunpoora without any other obstruction until it arrives off Falcon Chur, where it breaks into two smaller streams and joins the Hattyah River.

"North-east of Sundeep where the tides run with great velocity, the rise at high water spring tides is fully 40 feet. On the eastern side of Hattyah it is 20 feet; the surface of the island is then only 3 or 4 feet above high water mark.

* Dr. Hooker mentions that in October 1848, the high tides covered Sundeep island, and deposited six inches of deposit on its level surface, filling ditches several feet deep.

"The Ilsha or Tetooleea River between Backergunge and Shahbazpore is far less salt than the estuaries east of it; this is owing to the volumes of fresh water brought down by the Megna and Ureal Khan Rivers.

"Loud shouts from the boatmen invariably announce the approach and appearance of the bore, which is seen and heard for five or six miles off. Boats, high and dry on shore, and in the numerous khalls, are afloat within half an hour of the first rush of the tide; even the birds feeding on the sandbanks take flight with the very first sound of the bore."

140. The natives on the Chittagong shore, east of Sundeep, declare, says Mr. Smart, that occasionally the tidal wave reaches a height of 80 feet above low tide level. This is no doubt very great exaggeration, but I am not aware of the actual maximum height of the wave having ever been determined.

141. No bore has, I believe, ever been observed in any of the many rivers, or estuaries of the Soonderbuns of Bengal, from the eastern or Sundeep channel of the joint streams of the Megna, Brahmapootra, and Ganges on the east to the River Hooghly on the west. One of these rivers, however, "the Hooringotta," which has been carefully surveyed and mapped, falls into an estuary, which contracts gradually; is subject to high tides; whilst the river itself narrows by degrees. These three conditions, when present, are supposed, according to the present theory, to be favorable to the formation of a "bore" wave. And we should accordingly expect to find a small one in this river, but none is known there. It appears, therefore, that further investigation is necessary to elucidate satisfactorily all the various and different circumstances under which the phenomenon occurs.

Forest produce of the Soonderbuns.

142. The forests of the Soonderbuns furnish many varieties of timber; the principal of these are enumerated in the following list, by Mr. C. P. Caspersz, Commissioner in the Soonderbuns.

NAMES OF TREES.		Average Diameter in feet.	REMARKS.
Bengalee.	Botanical.		
Gaub ...	Diospyros embryopteris glutifnifera	3	The sap extracted from it is extensively applied to native boats as a preservative against decay, and the attacks of sea-worms.
Hurtukky ...	Terminalia Chebula ...	3	The Gallnut tree. The fruit and galls are much used by dyers, with alum they give a yellow; and mixed with ferruginous mud an excellent black. The timber is used for a variety of purposes.
Soondree ...	Heritiera Minor ...	2	A strong wood used for a variety of purposes. Large quantities are taken to the Calcutta market as fire-wood.
Posoor ...	...	2	Used for manufacture of native furniture.
Kaorah ...	Sonneratia Apetula ...	3½	Used for platforms, boxes, &c.
Kirpa ...	Lumnitzera Racemosa ...	2	Used for small boats, &c., and for posts and other parts of houses, and in Calcutta as fire-wood.
Byre ...	Zizyphus Jujuba ...	3	Used for sluices, &c.

NAMES OF TREES.		Average Diameter in feet.	REMARKS.
Bengalee.	Botanical.		
Koroo ...	...	2	Used for posts, &c.
Oumsir ...	...	1	Ditto ditto.
Gurran ...	Coriops Roxburghianus ...	½	Ditto ditto and bark for tanning.
Sonalee ...	...	2	Ditto ditto ditto.
Bhylah ...	...	1	Ditto ditto and hooka pipes.
Jeen ...	...	4	Fire-wood.
Loha Koira ...	...	1½	Ditto.
Phoolsie ...	...	1	Ditto.
Singea ...	...	1	Ditto.
Choelah ...	...	2½	Ditto.
Kaukrah ...	Bonguiera Rheedii ...	2	Ditto, hard and durable wood.
Naringah ...	...	2	Used for handles of bill-hooks, axes, and spades or mattocks.
Bolee ...	... ...	½	Fire-wood; the inner bark also yields a strong fibre.
Ooreean ...	...	2	Used for small boats, platforms, &c.
Gavah ...	...	2	Used for native drums, picture frames, &c.
To the above may also be added the following trees and shrubs:—			
Orchuka ...	Sonneratia Acida ...	...	Good fire-wood.
Bhora ...	Rhizaphora Mucronata ...	...	Wood dark, red, durable.
...	Salicorna Brachiata ...	...	Shrubs, from which the Natives obtain barilla for soap.
Judoo paling ...	Ditto Cindica ...	...	Ditto ditto.
Bolaee ...	...	...	Ditto ditto.
Hental ...	Phœnix paludasa ...	...	Young trees are used for making walking sticks. Older trees are made up into raters for huts. The leaves are used for thatching.
Kurunj ...	...	...	The oil of the fruit is used for medicinal purposes. The wood is used for fuel and charcoal.

143. The entire area of the Soonderbuns was estimated by Mr. Caspersz, Commissioner of Soonderbuns,* at 6,900 square miles, of which about 3,400 square miles had up to the end of 1864 been assigned under clearance leases to grantees, who had cleared and rendered fit for cultivation about 2,100 square miles. This left 3,500 square miles of forest unallotted.

* Letter to Commissioner, Nuddea Division, No. 169, dated 24th November 1868.

144. In the Soonderbuns no forest conservancy existed, nor did Mr. Caspersz deem it necessary.

145. In the Dullooah Burgonah and Nultonah forest of Backergunj an annual revenue of Rs. 110 was realised as license for collecting honey and wax, and in Nultonah a further sum of Rs. 25 for the privilege of cutting timber, a sum which the payer of the license could have realized in a few days.

Honey and Beesloon.

146. The wood-cutters of the Soonderbuns appear to have had a prescriptive right to the timber and fire-wood of these forests, as says Mr. Caspersz in the same letter. "The timber is cut by wood-cutters on their own account; they have always enjoyed the privilege of doing so without any license." He adds, however, "The villagers have no right whatever to cut timber, or other trees in the forest, but they have always been permitted the privilege of doing so."

Forest rights.

147. During the time the survey was progressing a rough census of the people was made, as usual, by the Civil Officers and employés of the Demarcation Establishment. The numbers of houses were counted as nearly as could be; and allowing on an average five souls to each house, a general and approximate return of the population of each district was arrived at. The mode of proceeding was a rough one, but it had the great advantage of not interfering with the progress of the survey which a closer and stricter scrutiny would assuredly have done.

Population of the three districts.

148. The results of the survey census were as follows, *viz.*:—

	Number, of Houses.		Population.
	Masonry.	Mud and thatch.	
Jessore	1,885	180,090	909,875
Fureedpore	350	124,732	409,995
Backergunge	807	165,742	832,745
Grand Total	3,042	470,564	2,152,615

149. Sub-dividing these according to their religions, whether Hindoo or Mahomedan, the numbers and relative proportions of one to the other are approximately as follows:—

	Hindoos.	Mahomedans.
Jessore	431,715	478,160
Fureedpore	182,137	227,858
Backergunge	322,079	510,666
Grand Total	935,931	1,216,684

150. Amongst the Mahomedans the sect of Ferazees forms a very important part, and the numbers of its followers are said to be annually and steadily increasing. A very large proportion of the Mahomedan population of Fureedpore, and Backergunge, and of Jessore, especially along the banks of the Mudhoomuttee, Nubogunga, Barakur, and Hooringotta rivers, belong to this sect.

Sect of Ferazees.

151. The following description of the origin of this sect was given to me at Fureedpore by one of its members:—

Origin of—

"The founder of the sect of Ferazees named Hajee Shureet Oollah, was born in the old "village of Dowlutpore, in the Thannah Circle of Seeb-Chur, District Fureedpore. He was "possessed of a small estate, the greater portion of which, together with the village of "his birth, has long since been cut away by the encroachments of the Podda or Ganges. "Objecting to the practice, obtaining generally amongst the Mussulmans, of employing certain "persons only to perform the ceremony of circumcision in families, and also to the habits of "squandering large sums of money at marriage festivals, he about the age of 32 promulgated "his new ideas on these subjects, and soon obtained a few devoted followers. These rapidly "increased in number; and the greater part of the Mahomedans of the district, and many in the "neighbouring districts, have now joined the sect. On the Hajee's death his followers assembled, "and by common consent named his son Doodoo Meah Head of the sect. This man is said "to have on several occasions abused the trust placed in him by his followers, and to have "purchased an estate with the money placed in his hands for religious purposes. He then became a great tyrant, and complaints against him became numerous. On one of these he was "tried, convicted, and imprisoned. In 1857 he was removed to Calcutta, and kept in safe "custody there until the close of the great mutiny. On his return to the district he was "cleverly captured to answer another charge against him by one of the Fureedpore Thannah "Darogahs, who disguising himself and taking some Policemen with him presented himself "before Doodoo Meah and represented to him that they all desired to join the sect of Ferazees. "Doodoo on hearing this and suspecting nothing left his hiding place with them, was immediately captured, put on board a boat which the Darogah had in waiting, was taken to Fureedpore, "and lodged safely in jail. When again released he left the district then too hot to hold "him, and it is believed sought refuge in Dacca, where, in 1861, he was said to be very ill." He is since then dead.

152. The soil of these districts is more than ordinarily fertile and productive; and the whole country being liable to annual inundations from the numerous rivers which traverse it in every direction, is continually renovated by fresh deposits, which render its powers of yield almost inexhaustible. Appendix No. V gives a close approximation to the distribution of soil, and the proportion of cultivation to waste. But by waste is not meant wholly unproductive tracts. None such exist that I am aware of in these parts of Bengal, some of the sandy churs in the rivers excepted. Under the head waste are included building sites; jungle, forest or bush, grass or reed; the great jeels, or, beels (morasses); tanks, roads, &c. The great morasses and all the rivers swarm with fish, and are, I believe, often more remunerative than an equal acreage of land.

Distribution of soil, and proportion of cultivation to waste.

153. The population being, as already shown, 21,53,615, and the actual area under cultivation being 41,31,657 acres, there would appear to be 192 acres for hundred souls, or nearly 2 acres to each.

Proportion of population to area.

154. The average numbers of population to the square mile are 256 in Jessore, 308 in Fureedpore, and 192 in Backergunge.

155. The state of education in these districts was very low when the survey commenced. Since then, however, much appears to have been done. The following brief statement supplied me by Mr. Martin, Deputy Inspector General of Schools, S. E. Circle, regarding the number of schools of different kinds and of the number of scholars on their rolls in 1864, when contrasted with the same numbers in 1866-67 as shown in statement (No. VI, Appendix) furnished by Mr. Atkinson, Director General of Public Instruction, shows the increase in three years. I am much indebted to these gentlemen for these separate Zillah statements, as it is not customary to prepare separate statistics of each Zillah :—

Education.

Jessore, 30th April 1864.

"Of the Jessore Zillah Schools under Government inspection, forty-two are under "the Inspector of Schools in the South-Eastern Division, and one "hundred and forty-five under the Additional Inspector of Schools. "On the 30th April 1864 these were attended by two thousand and thirty-four pupils. Of "these schools one is an English School at the Head Quarter Station of Jessore. In it students "are educated and trained for entrance to the Calcutta University, and it has on its rolls one "hundred and fifty-three students. At the previous examination for entrance to the Calcutta "University six students of this school were successful. There are three other schools in the "district which educate up to the same standard, at Noral, Khoolna, and Magoora. Two students "of the first named school also succeeded in passing the University Entrance Examination. No "candidates for the University went up from the other two. The number on the rolls of these "schools is two hundred and fifty-four. There are also two Government Vernacular Schools, "attended by one hundred and seventeen pupils. These schools all receive grants-in-aid from "Government. There are four other grant-in-aid Anglo Vernacular Schools attended by one "hundred and forty-four students, and seven grant-in-aid Vernacular Schools attended by three "hundred and thirty-eight boys. Sixteen other Vernacular Schools in three circles are attended "by eight hundred and fifty-eight scholars. Each circle has a Pundit paid by Government, "whose duty it is to visit each of his schools in turn, to give instruction to the higher classes, "and endeavour to improve the village teachers. There are nine girls' schools, of these seven "receive grants-in-aid, and are attended by one hundred and fifty-eight little girls. The other "two unaided number twenty-two girls on their rolls.

Fureedpore, 30th April 1864.

"In the Fureedpore District there are ninety schools under Government inspection. These "ninety schools are attended by two thousand four hundred and "sixteen pupils. One is the English Government School at Fureed-"pore, which prepares candidates for the Calcutta University Entrance Examination, and numbers "ninety-eight scholars. Four of its pupils were successful at the last Entrance Examination. "Four grant-in-aid Anglo Vernacular Schools have adopted the University Entrance standard "and are attended by eighty-five students. One Government Vernacular School has thirty-two "students. Five other Anglo Vernacular Schools have sixty-two students on their rolls and "receive grants-in-aid. To the nine Anglo Vernacular Schools are attached twenty-seven "Vernacular Schools with eight hundred and thirty-eight pupils. These all receive grants-in-aid. "Twenty-eight Vernacular Schools attended by one thousand and twenty-seven boys are divided

"under ten Pundits into circles. Of unaided schools there are four Anglo Vernacular attended "by thirty-six pupils, and two Vernacular with one hundred and sixty-six boys.

"There are also ten girls' schools in the district attended by seventy-two girls; seven of these "schools are aided, and three unaided by Government.

Backergunge Schools, 30th April 1864.

"There are in the Backergunge District forty two-schools under Government inspection, "attended by two thousand and ninety-eight pupils. Of these "the English School at the station of Burrisul is one of the very "best in the Mofussil. It numbers two hundred and seventy-four pupils, and at the last "Calcutta Entrance Examination eighteen of its pupils were successful, eight of the schools are "Anglo-Vernacular, and four Vernacular, receiving grants-in-aid, and are attended by three "hundred and seventy-one and one hundred and ninety-three students respectively. Eighteen "other Vernacular Schools attended by seven hundred pupils are divided into circles and placed "under teachers (Pundits) paid by Government; the teachers and pupils being encouraged "by rewards proportionate to their progress. Of unaided schools there are nine Anglo-"Vernacular with four hundred and ninety-five and one Vernacular with thirty-five pupils."

156. There is also one grant-in-aid girls' school attended by thirty girls.

157. Making an abstract of the above total numbers for each Zillah the following results are obtained:—

	Schools.	Number of Scholars.
Jessore	187	2,034
Fureedpore	90	2,416
Backergunge	42	2,098
TOTAL	319	6,548

158. In 1866-67 there were according to the Director General's return—

	Schools.	Number of Scholars.
In Jessore	283	7,371
In Fureedpore	90	2,278
In Backergunge	84	3,051
TOTAL	457	12,700

or an increase in the three Zillahs of 138 schools and 6,152 scholars.

159. There are several well attended schools in these districts under the direction of the Baptist Missionaries, who are in direct personal connection with the London Committee.

160. In Jessore there are four circles, Nischindipore, Jessore, Khoolnah, and Soonderbuns.

161. Regarding the 1st circle the Rev. M. Hobbs gives the following information :—

"At Nischindipore we have an orphanage for boys and girls which contains 20 children. "Five of these being received during the famine, Government allows for them 2 Rupees "each monthly. The other fifteen are maintained mostly by Sunday School Children in "England.

"The children are instructed in reading, writing, geography, grammar, arithmetic, "and the holy scriptures, the girls in addition learning plain and fancy needle-work.

"The cost of maintenance for 1867, together with house accommodation, servants, and tuition, was Rs. 757. This school is about being removed to Jessore.

"In the villages round Magoorah there are 6 Vernacular Schools, in which reading, "writing, arithmetic, elements of grammar, and holy scriptures, are taught. They are "situated as undermentioned. :—

	Boys.
"Magoorah	35
"Kholkholla	26
"Eechaphoda	36
"Athors Hhoda	28
"Hazrapore	30
"Nischindipore	18
TOTAL ...	173

"These schools form a circle in connection with the Christian Vernacular Education "Society, and are carried on at a cost of Rs. 48 monthly, of which Government contributes "Rs. 24, Christian Vernacular Education Society Rs. 13, and Baptist Missionary Society "Rs. 11."

162. Of the other three circles the Reverend Mr. Ellis thus writes from Jessore :—

"*In Jessore Proper*—We have 8 schools, 7 for boys and 1 for girls. The latter and one "of the former are kept up by private subscriptions, and the remaining 6 are circle schools, "and are supported to the extent of one-half the expense by Government. The average "number on the roll of these circle schools for the last twelve months was 238 boys, of whom "131 are Hindoos, and 107 Mahomedans. The average attendance was 173. The expense, "including an Inspector or Pundit on Rs. 24, is Rs. 54 monthly. The remaining boys' school "is attended by 25 pupils, and the teacher, is paid like the circle school teachers Rs. 5 a "month. The girls' school contains 9 pupils, and the teacher a Christian woman, received only "Rs. 3 monthly. Both these schools have only recently been established.

"*The Khoolnah Circle*—Consists of 6 schools, in which there are enrolled 309 children, "and at which the average attendance is 255. I cannot give the proportion of Hindoo and "Mussulman children attending these schools. The expense of their support, including Rs. 16 "paid to the Inspector or Pundit, is Rs. 55-8 a month, of which one-half is supplied by "Government. The remaining half is, as in the case of the Jessore Circle, kindly furnished "by the Christian Vernacular Education Society.

"*The Soonderbun Circle*—Contains 4 schools. On the rolls there are 154 children, of "whom the average attendance is 98. The expense with Rs. 10 to the inspecting Pundit, "is in all Rs. 26 monthly, and is met one-half by Government and one-half by the Baptist "Mission Society.

"In all these schools religious instruction is given daily, the higher classes reading some "portion of scripture, and the lower committing to memory a simple catechism. The teachers "are for the most part non-Christian, though believed to be well affected towards Christianity; "the inspecting Pundits are Christians. The Soonderbun Circle is taught by Christians alone. "The schools like those in most circles throughout the country are very elementary, but "are gradually improving in usefulness. Owing to the number of Normal School teachers "who have found schools in the adjacent villages, ours are not so well attended as formerly. "The attendance has also been seriously affected by the recent cyclone, and more lately "by the fear of cholera."

Routes by land.

163. There are not many good roads in this part of Bengal. But the water courses afford good means of communication at all times of the year, and during the rainy season, or from June to October, offer in many places the only possible means of traversing the country. The principal roads are 1st, the main or the Calcutta and Dacca road from Jhingergatcha bridge on the Cobadduk river through Jessore, Nohatta, and Mohomedpore to Fureedpore; and thence across the Megna, or Ganges river to Dacca. 2nd, the road from Jessore, northerly, through Jenidah and Comercolly (District Pubna) to the Civil station of Pubna. 3rd, the road from Jessore southerly to Khoolnah (the steamer coaling station) at the junction of the Bhyrub river and Roopshah Khall. 4th, the road from Magoorah (Sub-Divisional station) on the Nubogunga river through Jenidah westerly to the Bengal Eastern Railway.

164. There are also several other fair-weather roads leading to and from the various Indigo factories.

Eastern Bengal Railway extension.

165. The Bengal Eastern Railway extension from Kooshteah station at the junction of the Ganges and Goraee rivers, to Goalundo (an old indigo factory site) a little west of the junction of the Ganges and Jumoona or Brahmapootra river, passes through the northern part of the Fureedpore District running almost parallel to the course of the Ganges river. The Railway will cross the Goraee about two miles below the effluence of the Kaligunga Nuddee by a bridge of seven spans, each of 175 feet or total length of 1,225 feet, the approach to which from the Kooshteah side will be by a viaduct, or approach on 9½ arches or spans of 43 feet each, or a total of 408½ feet.

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166. The crossing of the Chundna river will be a screw pile viaduct and bridge of 12 spans, each 46 feet, total length 552 feet.*

By water.

167. A statement of the principal navigable rivers and streams of the three districts is given in Appendix No. VII. This is a reprint taken from the statement of navigable rivers, canals and khalls in Bengal published in 1866 at the Bengal Secretariat Office.

168. A brief description of some of these great water-ways may prove interesting; commencing then from the west:—

169. The Cobbaduk river is open to boats of 1,000 maunds from the Koyra khall, south, to Chowgacha, north. Below the Koyra khall, and between it and Gobra (the last place of human habitation to be found on this river, on its course to the Bay of Bengal, through the Soonderbuns) it was at the time of survey silting up rapidly. This river like almost all other rivers of these districts is tidal. At Jhingergatcha where the Calcutta road crosses the river by an iron suspension bridge, the rise of tide was about 10 feet and the depth of water at low tide 13 feet. Large quantities of Senwar, a water plant used by sugar refiners to clarify sugar, grow in this river. The collection of *this* plant affords employment to some of the poorer classes. The villages on either side of the river are most of them very unhealthy. After a heavy rainy season fever prevails to a great extent, and when the season is dry, cholera; small-pox is common in the spring and is often the forerunner of cholera.

170. Lower down, the Cobbaduk is connected with the Booshkhallee khall (one of the inner Soonderbun khalls) by the Kata khall, whereby a great bend of the river is avoided. This khall was excavated by Praunnauth and Paul Chowdrees. All the sugar boats from Kotchandpore, Chowgatcha, Jhingergatcha, Sri Mohunee, &c., on the Cobbaduk, pass down by this route. But the rush of water at ebb tide is very great, and care is required passing through the Kata khall.

171. Beyond the fact of the upper reaches of the Cobbaduk river having silted up, and being now nearly dry in the summer, little or no change appears to have taken place in it since it was surveyed and mapped by Rennell in the past century.

172. *The Bhyrub river* is a bifurcation of the Cobbaduk, which it leaves a little south of Kotchandpore indigo factory; thence to the village of Sekhatee; it is a small sluggish stream, winding for the most part through low swampy ground. About half way between these two places it runs through the station of Jessore. Below Sekhatee it increases in size, and its course straightens considerably until it reaches the Upra khall, whence it becomes a navigable stream for boats of almost any size. Thence continuing its course to the south-east, it leaves the more swampy country, and after passing Khoolnah and Sain-ka-Bazar its banks are crowned with villages, forming, for the most part, a continuous line of houses, gardens, beetel, and mangoe groves; interspersed with cocoanut, date, palm and forest trees. It finally runs into the Balissur river at Catchooa.

173. Sain-ka-Bazar and Fukeerahat or Fukeera-bunder are the chief marts on this river. The latter especially has generally numbers of boats lading with the produce of the

NOTE.—*Vide* List of Works showing water-way, Eastern Bengal Railway, Goalundo extension.—Supplement *Calcutta Gazette*, 1st July 1868.

neighbouring villages and Soonderbuns, consisting chiefly of dhan, goor, cocoanuts, matting, reeds, &c. A good tracking or towing path was much required along the banks of this river. From Sain-ka-Bazar steamers for Dacca and Assam, after coaling at Khoolnah, take one of the two following routes, *viz.*, either up the Attara Banka and thence down the Balissur if the flat or flats be lashed alongside the steamer; or if the flat be towed astern, then down the Bhyrub, and thence by Burrisaul. The Bhyrub route is the shortest by far, but is too narrow, and some of the turns are too sharp to admit of a large steamer, and flat alongside, passing through.

174. A route shorter still lies to the south of Khoolnah and of the Bhyrub river, by which river-steamers would save about 80 miles. And if a coaling station were established at Morelgunj, at the Pangoochee and Manik Khola river junction, there would be no difficulty in going by it. Steamers would then enter the Pussur river as usual, or, by one of the more southern khalls, pass down it to the south, instead of going north to Khoolnah to coal, enter the Chachungong, and thence by the Chandpaee khall, Bhola and Manick-Kholo rivers to Morelgunj; there coal and on to Burrisaul by the Kocha river. It was by this route that the Teesta steamer took me when going to survey the islands at the embouchure of the Tetolia river (one of the mouths of the joint Ganges and Megna) into the Bay of Bengal. There is only one difficult place to pass, *viz.*, a sharp turn in the northern part of the Chandpaee khall. Large boats laden with rice, wood, &c., pass by this route from Backergunge District to Calcutta.

Soonderbuns' boat-routes.

175. The following are the boat-routes from Calcutta *viâ* the Soonderbuns and Khoolnah to the North-Western and Eastern Provinces and Districts.

The upper-route taken by boats under 400 maunds tonnage is by the canal-route from Calcutta to the Morechap river, thence into and up the Cobbaduk river, and then *viâ* the Booshkhallee khall, Seepsah Aga, Duletti Gong, and Bhudder rivers, through the Soorkhallee, or, Khoutamaree khall, again into the Bhudder river, and by the Kata khall, Jhubjhubea nuddee and Bytaghata khall into and up the Pussur, Kajeebacha and Roopsah, or Ramdasee rivers to Khoolnah.

The middle-route for boats of larger burthen is from the Morechap, into and down the Cobbaduk river, and thence, *viâ* the Chandkhallee khall, Menus, Seepsah, and Dhakee (or Gurhkhallee, or Badoorgatcha), and Bhudder rivers, *viâ* the Manga and Jhubjhubea rivers, or Choonkooree khall and up Pussur river as before, or if bound for Backergunge, down the Pussur river, and into the Chachon Gang. A modification of the middle-route is made, during the months in which storms prevail, *viâ* the Cobbaduk river, into and through the Terawarea and Ghosekhallee khalls across the Seepsah, into the Dhakee river, and thence, as before, avoiding the Menus and Seepsah rivers, which are dangerous in stormy weather.

176. *The Nubogunga river.*—This stream is connected with the Matabangha river in the Nuddea District, and enters that of Jessore near Sindoora indigo factory. Thence it follows a very winding easterly course to Magoora, when it turns to the south and passing the indigo factories of Benudpore, and Nohatta, and the large village of Nuldee, it enters the Mudhoomuttee river a little beyond Lohagurra police station.

177. During the months of April and May and when north-westers prevail, large country boats, en route to Calcutta, pass into the Nubogunga river from the Mudhoomuttee by the Marheekhallee khall near Magoora, leave it again at Nuldee, and pass by the Ghora Khallee khall, the Chitra river, and Mullour and Majoor Khallee khalls into the Bhyrub river to Khoolnah, in preference to going by the Mudhoomuttee, the Baraker and Attara Banka rivers. Along the whole of this route a good tracking or towing path was much required, and especially along the Nubogunga, which has generally high steep banks, and is in most places covered with village-jungle and houses. Here and there a little narrow path existed, but never continuously for any distance; thus the boatmen were obliged either to anchor and wait for the tide; or to cross continuously from one side to the other of the river, whereby endless disputes arose between the boatmen and villagers.

178. The banks of this river are favorite haunts of the river Mynah. These birds select, for the purposes of breeding, the hollows that have been excavated by eddies of the stream; in such places the perpendicular banks are riddled with their nest holes. King-fishers also frequent similar localities, probably from being less disturbed than elsewhere, as boatmen carefully avoid these eddy cuts in the bank, and keep their boats well out from them.

179. *The Mudhoomuttee or Ellen Khallee, the Barasea or Barashee; the Balissur and the Hooringottah rivers.* These with the Goraee all form one continuons river from the Ganges to the Bay of Bengal.

180. It is a point worthy of note that in all the eastern districts of Bengal, and especially in those bordering on the Soonderbuns, one general name for a river, no matter of what size, is seldom if ever found. The names change continually, and in many parts the villagers on one bank, if asked the name of the stream, give it one designation, whilst those on the opposite side give it another totally different. Again, entering a khall at one end, and enquiring the name, it is common to hear the name of the nearest haut, or market given to it; but enter from the other end and ask the same question; and then supposing more hauts than one be established along the khall, as is often the case, the villagers will give the name of the market place nearest their end.

181. The river above mentioned follows a south-easterly course, more or less tortuous, from the Ganges at Kooshteah as far as Gobra, opposite the entrance of the Chitra river, or khall. Thence it runs almost due south, but with great windings in the upper reaches into the Bay. This is the great route for river steamers between Calcutta and the North-Western Provinces during the dry season and when the Nuddea rivers are closed.

182. The flow of water from the Ganges down this great water way is steadily increasing. In 1828 the Goraee at Kooshteah was only 600 feet broad. But when in 1854-55 it was surveyed by Mr. Pemberton, Revenue Surveyor, the average breadth of the upper reaches from the village of Bahadoorkhalee to that of Raiepore was 1,320 feet, and at the entrance it was 1,400 feet; whilst now at the entrance it is 1,560 feet. It has therefore much more than doubled its discharging power in the past 40 years. These are, it should be remarked, the breadths of the river during high floods.

183. At times when the Jumoona, or Brahmapootra river, is in full flood, it dams up the Ganges, and still further increases the flow of water down the Goraee, which forms at such times the principal outlet for the Ganges waters into the sea. The banks of this stream are mostly high and precipitous in the upper reaches, but gradually decrease in height to the south, until reaching the Thannah station of Catchooa, below which the river overflows its banks, during high spring tides, in many places. The water is sweet and excellent, till within a few miles of the sea, and of sufficient depth for ships of large size as far as Catchooa; but unfortunately, across the entrance, from the Bay, a broad bar has formed, with only 2¼ fathoms over it at low water; and as the rollers from the Bay come in across it, very heavily, when the wind is southerly and the sea at all rough, vessels would hardly dare risk the passage. In its present condition therefore there is no hope of establishing a port on this river.

184. The changes that have taken place in this river since Rennell's survey during the last century, may be judged by reference to the maps appended. Then the Goraee was very small; and the chief track for boats from the Ganges into the Mudhoomuttee was *viâ* the Chandna river, which branches off south from the Ganges about 26 miles below the Goraee. The Chandna is now a very insignificant stream; is silting up fast; and, with the exception of pools here and there, is dry in the summer months.

185. The Ganges between the Goraee entrance at Kooshteah, and its junction with the Jumoona, between Jaffergunge and Elichipore, has straightened its course considerably, and appears inclined to do so still more. But still it is a question whether it is not silting up entirely between the Fureedpore and Pubna Districts; speaking of the action of the Jumoona, or, Brahmapootra (the Junai of old maps) in silting up and driving back the Ganges, Mr. Fergusson thus writes in the Quarterly Journal of the Geological Society in August 1863: "It "was so nearly successful that in 1838 the great Ganges was fordable at several places above "the junction * * *, and it must have been successful if the Ganges had been able to "find another outlet."

186. It certainly had silted up considerably, and was again fordable, in parts, when the survey was progressing in these districts. And if this action continues then the Goraee will probably become the principal outlet for the Ganges waters, and during the dry months the most easterly one also. Such a contingency occurring would very materially increase the value and importance of the Bengal Eastern Railway extension from Kooshteah to Goalundo; as if the present route for boats between the Jumoona and the Goraee closed, they would be obliged to go round by the Soonderbuns *viâ* Burrisaul; a difficult and tedious route at any time, and especially so in months when north-westers are prevalent on the great Megna; or they must unload and send all goods by rail, the preferable course no doubt.

187. The only thing apparently that now operates in preventing the Ganges being driven back by the Jumoona and forced into another course, is mentioned also by Mr. Fergusson, *viz.*, that although the rise and fall of the Brahmapootra takes place earlier than the same phenomena in the Ganges; and "the consequence of this is that for the first month of the inundation, the "water in the Ganges above Jaffergunge almost flows backwards, and the Echamuttee at Pubna "flows into the Ganges instead of out of it, and during this season the deposit in its bed is very

"considerable," ye that, "during the last months of the rains, when the water of the Brahma-
"pootra have nearly run off, the immense body of water spread over the vast plains of Hindoo-
"stan rushes into the partially deserted bed of the Brahmapootra, which then acts as a water-
"reservoir, with a force that to a great extent clears out the deposit of the earlier months
"and so restores the equilibrium."

188. This state of antagonism between the two rivers will continue until the Ganges has opened a sufficiently large outlet for herself by the Goraee, or other streams still further to the west; when she has done that, should there then be two or three years of long duration of floods in the Brahmapootra and of early cessation of the Ganges floods, we shall no doubt see this latter river, beaten in the contest, and unable to clear out the deposit of the earlier months, retire from the field.

Joint streams Ganges, Brahmapootra, and Megna.

189. Below the extreme eastern point of the Bengal Eastern Railway extension at Goalundo, the changes in the courses of these streams have, ever since Rennell's time, and no doubt long before, been constant, and are still going on. Between that point and the sea, immense islands or churs are annually thrown up in one place, and washed away in others. Large portions of the country on both banks are still unconsolidated, and being covered only by grass or reed jungle are easily acted upon by the flood waters. Indeed it was often difficult for Surveyors to recognize the country that had been only surveyed by them the year before.

190. A comparison of the two maps of 1764-72 and 1847-63 will show what changes have actually occurred in that interval. The most important change appears to be where the joint streams Ganges and Brahmapootra forced their way into the Megna, between Rajbaree and Rajnuggur, partially deserting the old channel shown between Rajnuggur and Buderasore in Rennell's map; and thus bringing the waters of the Brahmapootra, reinforced by those of the Ganges, again into direct antagonism with those of the Megna. But here also the Megna, being first in the field, has hitherto obliged the Brahmapootra and Ganges to seek another outlet. This they have done by forcing a passage down the Bhoobuneshur river (the Haroilla river of Rennell), entering the old channel of the Ureal Khan river again at Mudareepore.

191. Many years must yet pass ere this part of the country will be sufficiently consolidated to control and restrain the courses of these rivers within permanent limits. On the Tipperah side, the country generally, down to the Dakatea river, being well wooded and firm, offers considerable resistance to the action of the tremendous floods of these great rivers. This forces them, as one river or the other prevails, to cut out new channels in the softer and more recent deposits of the Backergunge District on the opposite side.

Duration and cost of Survey.

192. The professional survey of these districts commenced with that of Jessore in March 1856, and was continued uninterruptedly until Backergunge was completed in May 1863.

193. The out-turn and cost for the several years were as follows :—

	Officer in charge.	Square miles, Area.	Cost.		
1856 ...	Capt. (now Col.) Gastrell ...	575·05	13,703	15	3
1856-57 ...	Ditto ...	1,666·23	36,819	14	0
1857-58 ...	Ditto ...	a * 1,094·64	35,366	10	9
1858-59 ...	Ditto ...	1,408·39	35,313	12	7
1859-60 ...	Ditto ...	b † 1,088·90	26,427	9	7
1860-61 ...	Ditto ...	1,048·76	32,735	10	7
1861-62 ...	Ditto ...	1,528·74	33,335	5	6
1862-63 ...	Lieut. Stewart ...	973·56	35,271	5	9
	GRAND TOTAL ...	9,386·27	2,48,974	4	0

194. Prior to the survey of these districts by the Revenue Survey, the operations of the Great Trignometrical Survey had not been extended across them; no final test could therefore be applied to the land measurements.

In 1866-67, however, a series of triangles, connecting the East Calcutta longitudinal with the *Eastern Frontier* series, was carried across this portion of Bengal by Lieutenant Thuillier, R. E., and numerous points having been fixed by the Revenue Survey during their operations, a connection was effected by their aid between the Revenue and Great Trigonometrical Surveys.

195. On comparing the direct distances by Revenue Survey data, from Jhingergatchee Bridge over the Cobadduk river, on the extreme west, to the Sanpore Temple, on the extreme east, and again from Balashea Chur Station on the north, to Sanpore Temple on the south, with the same distances as obtained from Great Trigonometrical Survey calculations, the results are respectively as follows :—

R. S. DISTANCE IN		G. T. DISTANCE IN		DIFFERENCE
Miles.	Feet.	Miles.	Feet.	In feet.
100·85	532,471	100·84	532,422	49
28·53	150,639	28·52	150,616	23

or, average errors of 0·48 feet and 0·86 feet per mile.

a. * This includes 46·46 square miles of Soonderbuns' Forest, east of the Cobbaduk river.

b. † Besides this there were 388·55 square miles of Dacca District surveyed, south of the Ganges and adjoining Backergunge, at a cost of Rs. 8,628-2-2.

CALCUTTA,
The 23rd July 1868.

J. E. GASTRELL, *Colonel,*
D. S. G. and Supdt. of Reve. Surveys, U. C.

APPENDICES.

Appendix I.

Abstract of Areas in District Jessore.

	No. of Villages.	Area in		Remarks.
		Acres.	Square miles.	
Belonging to Jessore ...	4,261	1970660·17	3079·16	
" " Pubnah ...	16	7308·89	11·42	
" " Nuddeah ...	3	258·12	0·40	
" " 24-Pergunnahs ...	11	3500·05	5·47	
" " Backergunge ...	210	82104·27	128·29	
" " Soonderbuns ...	77	147324·68	230·19	
" " Rivers ...		35843·87	56·00	
Total ...	4,578	2247000·05	3510·93	
Forest East of Cobbaduck	.....	29734·40	46·46	
Grand Total ...	4,578	2276734·45	3557·39	

In District Fureedpore.

	No. of Villages.	Area in		Remarks.
		Acres.	Square miles.	
Belonging to Fureedpore ...	179	70883·02	110·75	
" " Jessore ...	1,329	532844·65	832·57	
" " Rajshahye ...	2	553·83	0·87	
" " Pubna	31	7347·08	11·48	
" " Dacca	414	193939·71	303·03	
" " Backergunge ...	58	40809·14	63·76	
" " Rivers	.....	117658·10	183·84*	
Total ...	2,013	964035·53	1506·30	

		Square miles.
* Bhoobunessur	River.	30·49
Chandna	"	4·24
Mudhoomuttee & Burasee	"	26·27
Ganges separating Furreedpore from Pubnah	"	33·80
Ganges separating Furreedpore from Dacca	"	89·04
		183·84

* This includes the area of

In District Backergunge.

	No. of Villages.	Area in		Remarks.
		Acres.	Square miles.	
Belonging to Backergunge ...	3,307	1642898·98	2567·03	The area here given, *viz.* 4,322·57 square miles accords with the area on the district map, exclusive of the Jessore Soonderbuns surveyed by Lt. Stewart, and mapped on the Backergunge map.
" " Jessore	25	68470·08	106·99	
" " Dacca	52	23816·92	37·21	
" " Bullooah ...	2	312·99	0·49	
" " Tipperah ...	1	188·22	0·29	
" " Backergunge and Dacca... ...	56	58559·30	91·50	
" " Dacca and Bullooah	4	2710·35	4·23	
" " Soonderbuns ...	70	427138·55	667·40	
" " Boundary Khalls	.....	12839·39	20·06	
" " Rivers	.....	529509·70	827·36	
Total ...	3,517	2766444·48	4322·57	

Appendix II.

Statement showing the names of Sub-Divisions, Thannahs and Moonsiffees in Zillah Jessore.

No.	Sub-Divisions.	Thannahs.	Moonsiffees.	Remarks.
1	Jessore ...	Kesabpore ... Monirampore ... Gudkhally ... Jessore ... Kaleegunj ... Bagarpara ...	Jessore.	
2	Magoorah ...	Magoorah ... Mahomedpore ... Seetkhalee ...	Magoorah.	
3	Jenada ...	Jenada ... Sulkopa ... Hurenakonda ... Kotchandpore ...		The Moonsiffee of Jenada has been abolished, and its jurisdiction amalgamated with that of the Moonsiffee of Magoorah. *Vide Calcutta Gazette*, dated 13th June 1866.
4	Naral ...	Naral ... Lohagara ...	Naral.	
5	Kholna ...	Kholna ... Doomria ... Delooti ... Bytaghata ...	Kholna.	
6	Bagirhaut ...	Molna Haut ... Bagirhaut ... Rampal ...		

Transfers already made.

From Pubna to Jessore	221 villages.
„ Nuddeah to Jessore	143 „
„ Backergunge to Jessore	215 „
„ Jessore to Nuddeah	24 „
„ Furreedpore to Backergunge	1 village.

Statement showing the names of Sub-Divisions and Thannahs in the Zillahs of Backergunge and Fureedpore.

Zillah.	Sub-Divisions.	Thannahs.	Moonsiffees.	Remarks.
Backergunge.	Puttooakhallee ...	Puttooakhallee ... Baophul ... Goolsakhallee ... Teakhallee ..	The Moonsiffees of these two Zillahs are not known in this office.	
	Pirijpore ...	Suroopkatee ... Pirijpore ... Mutbaree ...		
	Burisaul ...	Lushkurgunj ... Burisaul ... Nulchitee ... Backergunge ...		
	Mudareepore ...	Gournuddee ... Kotaleepara ... Hutooreea ... * Moolfutgunge ...		* Thannah Moolfutgunge, although under the jurisdiction of the Sub-Divisional Officer of Mudareepore, will be in the Dacca District.—*Vide* Notification, dated 5th October 1867.
Fureedpore.	Fureedpore ...	Furreedpore ... Talmah ... Betka ... Bolgachee ... Bhoosna ...		
	Bhanga or Kassimpore	Muxoodpore ... Sudderpore ... Gopeenathpore ...		

JOHN MACDONALD, *Major*,
Boundary Commissioner.

Appendix V.

STATISTICAL RETURN OF DISTRICTS JESSORE, BACKERGUNGE AND FUREEDPORE AS SURVEYED IN SEASONS 1855 TO 1863.

NAMES OF DISTRICTS.	No. of villages.	Total Area in Acres.	Detail Area in Acres.							Number of Houses.		Population.		
			Cultivation and fit for Cultivation.	Jungle.	Roads and Paths.	Jheels, Tanks, Nullahs and Rivers.	Mangoe Topes and Gardens.	Village Sites.	Barren Waste.	Pucka.	Kucha.	Hindoos.	Mussulmans.	Total.
Jessore	4,578	2276734·45	1818844·96	137946·21	3,029	250605·76	1,081	65104·52	123	1,885	180,090	431,715	478,160	909,875
Backergunge	3,517	2766444·48	1599226·59	334037·82	111	784247·07	26	48696·00	100	807	165,742	322,079	510,666	832,745
Fureedpore	2,013	964035·53	713585·88	15130·90	420	216679·75	71	18148·00	...	350	124,732	182,137	227,858	409,995
Grand Total ...	10,108	6007214·46	4131657·43	487114·93	3,560	1251532·58	1,178	131948·52	223	3,042	470,564	935,931	1,216,684	2,152,615

Appendix VI.

Statement showing the number of Schools together with the number of Pupils attending them, and the Cost—divided into Local and Government Expenditure for the Districts of Burisaul, Fureedpore and Jessore, for the year 1866-67.

	BURISAUL DISTRICT.					FUREEDPORE DISTRICT.					JESSORE DISTRICT.				
	Number of schools.	Average daily attendance of pupils.	Expenditure.			Number of schools.	Average daily attendance of pupils.	Expenditure.			Number of schools.	Average daily attendance of pupils.	Expenditure.		
			From Government.	From local sources.	Total cost.			From Government.	From local sources.	Total cost.			From Government.	From local sources.	Total cost.
Government Schools.															
Higher Class English	1	211	...	6,431	6,431	1	93	...	3,882	3,882	1	177	...	4,812	4,812
Middle do. Vernacular	...	...	...	...	...	1	42	...	212	212	2	45	...	524	524
Lower do. do.	4	92	...	1,055	1,055	...	...	...	...	...	2	48	...	610	610
Private Schools receiving allowances under Grant-in-Aid Rules.															
Higher Class English	...	...	...	...	...	...	...	...	...	...	3	178	1,870	3,232	5,102
Middle do. do.	24	1,091	4,517	11,780	16,297	11	327	1,827	3,068	4,895	23	842	6,665	10,765	17,430
Do. do. Vernacular...	9	429	2,243	3,295	5,538	22	663	2,041	3,085	5,126	5	179	780	1,030	1,810
Lower do. do.	...	...	...	...	...	1	8	48	64	112	18	322	953	1,428	2,381
Sanskrit School	1	23	40	42	82	...	...	...	...	...	...	...	...	...	...
Aided Circle Schools	...	...	...	...	...	...	...	...	...	...	8	206	198	408	606
Do. Girls' do.	9	78	155	349	504	4	41	165	214	379	14	119	1,022	1,264	2,286
Schools aided otherwise than under the Grant-in-Aid Rules.															
Middle Class Vernacular	13	470	952	474	1,426	...	...	...	...	...	...	...	...	...	...
Schools taught by Circle Pundits.															
Middle Class Vernacular	...	...	...	...	...	24	440	2,019	670	2,689	10	315	782	322	1,104
Lower do. do.	11	354	752	272	1,024	5	165	267	125	392	5	212	313	203	516
Girls' Schools	...	...	...	...	...	8	38	243	22	265	...	...	...	...	...
Unaided Schools, but under Inspection.															
Middle Class English	2	77	...	83	83	...	...	...	...	...	...	...	...	...	...
Do. do. Vernacular	1	30	...	44	44	5	131	...	115	115	...	...	...	...	...
Lower do. do.	...	...	...	...	...	3	101	...	106	106	...	...	...	...	...
Girls' Schools	3	15	...	71	71	1	17	...	...	...	...	...	...	...	...
Schools not under inspection & not aided.															
Middle Class English	2	101	...	86	86	...	...	...	...	...	7	280	...	...	...
Do. do. Vernacular	3	70	...	81	81	...	...	...	...	...	3	82	...	...	...
Lower do. do. or Toles	...	...	...	...	...	4	112	...	...	...	6	155	...	...	...
Girls	1	10	...	...	...	...	...	...	...	...	5	123	...	...	...
Schools under Baboo Bhudeb Mukhopadhyay															
Normal School (for training Village Teachers) ...	...	...	...	...	...	...	...	...	...	...	1	86	5,948	668	6,616
Model do. Lower Class Vernacular	...	...	...	...	...	...	...	...	...	...	1	35	110	23	133
Patshalas, ... do. do. do.	...	...	...	...	...	...	...	...	...	...	169	3,967	6,619	6,472	13,091
Total	84	3,051	8,659	24,063	32,722	90	2,278	6,610	11,563	18,173	283	7,371	25,260	31,761	57,021

A

Abstract Statement showing the number of Schools, the number of Pupils attending them, and the Cost—divided into Local and Government Expenditure—for the Districts of Burisaul, Fureedpore and Jessore, for the year 1866-67.

DISTRICTS.	Number of schools.	Average daily attendance of pupils.	EXPENDITURE.			REMARKS.
			From Government.	From local sources.	Total cost.	
Burisaul	84	3,051	8,659	24,063	32,722	
Fureedpore	90	2,278	6,610	11,563	18,173	
Jessore	283	7,371	25,260	31,761	57,021	
GRAND TOTAL	457	12,700	40,529	67,387	1,07,916	

Appendix No. VII.

Statement of Navigable Rivers, Canals, and Khalls, in Jessore, Fureedpore and Backergunge.

District.	Number.	River, Khall, or Canal. Name.	From what place.	To what place.	Length of Channel in Miles.	Direction through the District. From	To	Approximate average width in yards. In dry season.	In rains.	Number of months open for navigation.	Maximum maundage of boats employed in the River. In dry season.	In rains.	Whether any works are annually carried out for the maintenance of Channel.	Whether Tolls are levied.	Remarks.
Jessore.	1	Gorai River ...	Gunespore ..	Huripore ...	About 35	North ...	South ...	.....	420	12	Steamers	Steamers ...	None ...	None.	I have not attempted to fill up the columns stating the comparative breadth of the streams in the dry weather and the rains, for I have no information from which to do it. The statement is made out from the Pergunnah maps and from the local knowledge possessed by the undersigned aided by enquiries from such persons as were likely to be able to give it. The Khalls and Nullahs to the south of the district are tidal and are consequently not much affected by the inundation, and are open for traffic the whole year round. They exist in numbers which it will be quite impossible to indicate in the maps on the scale sent, even if the information necessary was available. I believe that the statement is tolerably accurate as regards the navigable channels in the district which are ordinarily used. E. W. Moloney, *Magistrate.* Note.—The breadth of streams has been entered from the records in the Revenue Survey Office, Calcutta.
	2	Hanoo River ...	Gorai at Bateapara	Gorai at Nisindpore.	15	North ...	South ...	.....	130	12	Large boats.	Ditto ...	Ditto ...	Ditto.	
	3	Muddoomutty River	Gorai at Horipore ...	Sunderbuns ...	100	North ...	South ...	.....	590	12	Steamers	Ditto ...	Ditto ...	Ditto.	
	4	Barashee River ...	Muddoomutty at Khallparah.	Mudoomutty at Lohagarrah.	25	North ...	South ...	.....	230	12	Large boats.	Large boats	Ditto ...	Ditto.	
	5	Koomar River ...	Doolia ...	Bagdanga ...	47	N. W. ...	S. E. ...	.....	270	12	Small boats.	Ditto ...	Ditto ...	Ditto.	
	6	Bowanipore Khall ...	Bowanipore ...	Nubogunga at Koolgatcha.	12	North ...	South ...	.....	50	3	.....	Bawleahs ...	Ditto ...	Ditto.	
	7	Mosra Khall ...	Koomar at Fulharee.	Nubogunga at Mooraridoha.	7	North ...	South ...	.....	50	3	.....	Ditto ...	Ditto ...	Ditto.	
	8	Kaligunga ...	Shainboonagar ...	Koomar at Bardaha.	10	North ...	South ...	.....	170	4	.....	Large boats	Ditto ...	Ditto.	
	9	Koomar Khall ...	Koomar at Kojolee...	Hanoo at Nohatta	3	West ...	East ...	.....	100	12	Small boats.	Ditto ...	Ditto ...	Ditto.	
	10	Chota Barasea River	Koomar at Bagdanga	Mudoomutty at Kassondi.	5	West ...	East ...	.....	200	12	Large boats.	Ditto ...	Ditto ...	Ditto.	
	11	Moorhi Khally ...	Koomar at Bagdanga	Nubogunga at Magoorah.	3	East ...	West ...	.....	200	12	Ditto	Ditto ...	Ditto ...	Ditto.	
	12	Nubogunga River ...	Sadooty ...	Mudoomutty at Lohagarrah.	75	N. W. ...	S. E. ...	.....	150	4 months to Magoorah, 12 months below that.	Ditto	Ditto ...	Ditto ...	Ditto.	
Backergunge.	13	Pulta Khall ...	Nobogunga at Pultea	Judoo Khally Khall.	3	East ...	West ...	.....	50	3	....	Bawleahs ..	Ditto ..	Ditto.	

14	Ghora Khally Khall	Nobogunga at Naldee	Chitra at Ghorakhallee.	3	North ...	South ...	.....	110	12	Large boats.	Large boats	Ditto ...	Ditto.
15	Chittra River No. 1.	Kharagodah ...	Attarabanke at Chially.	94	N. W. ...	S. E. ...	.....	60	3 months to Khajoorah, 12 months below.	Small boats.	Ditto ...	Ditto ...	Ditto.
16	Beny and Faky Rivers and Judoo Khally Khall.	Bishakhally ...	Chittra at new Boonagatee.	36	N. W. ...	S. E. ...	.....	50	3	.....	Small boats	Ditto ...	Ditto.
17	Gobra and Upra Khals.	Chittra at Gobra ...	Byrub at Upra...	9	East ...	West ...	.....	60	12	Bawleah	Large boats	Ditto ...	Ditto.
18	Mulour Khall ...	Chittra at Jhaboor Haut.	Byrub at Sollpore	17	North ...	South ...	.....	60	12	Large boats.	Ditto ...	Ditto ...	Ditto.
19	Baroiparah Khall ...	Chittra at Baroiparah	Kalia River at * Kalia.	1½	West ...	East ...	.....	50	12	Small boats.	Ditto ...	Ditto ...	Ditto.
20	Bankana River ...	Nubogunga at Lukheepassa.	Kalia River at Patna.	10	North ...	South ...	.....	90	12	Ditto...	Ditto ...	Ditto ...	Ditto.
21	Kalia River and Gangnee.	Patna ...	Muddoomutty ...	11	N. & N. W.	S. & S. E.	.....	40	12	Ditto...	Ditto ...	Ditto ...	Ditto.
22	Attarabanke River ...	Muddoomutty at Chapalee.	Byrub at Allipore.	20	N. E. ...	S. W. ...	.....	220	12	Steamers	Steamers ...	Ditto ...	Ditto.
23	Chittra River No. 2	Attarabanke at Nugurkoondy.	Muddoomutty at Chitulmaree.	22	N. W. ...	S. E. ...	.....	80	12	Medium boats.	Medium boats	Ditto ...	Ditto.
24	Jogania Khall ...	Attarabanke at Shacheeadhaha.	Muddoomutty at Jogania.	6	South ...	North ...	.....	50	12	Ditto...	Ditto ...	Ditto ...	Ditto.
25	Gangnee Gang ...	From Jogania Khall	Muddoomutty to Doomria.	4½	South ...	North ...	.....	50	12	Ditto	Ditto ...	Ditto ...	Ditto.
26	Nalooa Khall ...	Muddoomutty at Oodypore.	Muddoomutty at Nalooa.	11	North ...	South ...	.....	100	12	Large boats.	Large boats	Ditto ...	Ditto.
27	Talisur River ...	Chittra No. 2, at Nurendropore.	Byrub at Talisur	5	North ...	South ...	.....	50	12	Small boats.	Medium boats	Ditto ...	Ditto.
28	Byrub River ...	Jessore ...	Muddoomutty at Catchooa.	95	N. W. ...	S. E. ...	.....	150	3 months to Bussoontea, 12 months below.	Large boats.	Large boats	Ditto ...	Ditto.
29	Mojood Khally Khall	Maloorkhall at Ramnugger.	Byrub at Simultola.	4	N. E. ...	S. W. ...	.....	70	12	Medium boats.	Ditto ...	Ditto ...	Ditto.
30	Roopsha River ...	Byrub at Khoolnah	Kajeebacha River	8	N. E. ...	S. W. ...	.....	350	12	Steamer	Steamer ...	Ditto ...	Ditto.

District.	Number.	River, Khall, or Canal. Name.	From what place.	To what place.	Length of Channel in Miles.	Direction through the District. From	To	Approximate average width in yards. In dry season.	In rains.	Number of months open for navigation.	Maximum maundage of boats employed in the River. In dry season.	In rains.	Whether any works are annually carried out for the maintenance of Channel.	Whether Tolls are levied.	Remarks.
Jessore,—continued.	31	Bytaghatta Khall ...	Roopsha at Bytaghatta. ...	Bhudder River...	6	East ...	West ...	.....	30	12	Large boats.	Large boats	None ...	None...	This Khall will be straightened by the new cuts now being made.
	32	Hurihur or Bhudder	Keshubpore ...	Soonderbuns ...	30	N. W. ...	S. E. ...	.....	190	12	Ditto	Ditto ...	Ditto ...	Ditto.	
	33	Joykhalee Khall and Grangrail.	Bhudder ...	Bhudder ...	12	S.W. ...	N. E. ...	.....	150	12	Ditto	Ditto ...	Ditto ...	Ditto.	
	34	Delooti River ...	Ditto ...	Scepsah ...	5	N. E. ...	S. W. ...	.....	160	12	Ditto	Ditto ...	Ditto ...	Ditto.	
	35	Seepsah River, Bhose Khally Khall.	Delooti ...	Cobbaduck ...	9	East ...	West ...	.....	270	12	Ditto	Ditto ...	Ditto ...	Ditto...	There has been a new cut made at the Bhose Khally Khall.
	36	Cobbaduck ...	Kotechandpore ...	Soonderbuns ...	112	North ...	South ...	.....	210	12	Ditto	Ditto ...	Ditto ...	Ditto.	
Pore.	1	Pudma ...	Chur Khapoora ...	Chur Chakendee	60 mls.	W. & N. W.	E. & S. E.	.....	1,600	12	125				
	2	Urealkhan or Lorikola.	Madhab Balar Dholla	Doodkhally Chur or Fanseelullar Khall.	48	North ...	South ...	.....	1,600	12	50				
	3	Koomar ...	Mothoorapoor ...	Madareepore ...	100	N. W. & N.	S. E. & S....	25	60	5 months in the rains up to Kanaipore & 12 months from thence to Madareepore.					
	4	Muddoomutty ...	Mattayel ...	Patganty ...	40	West ...	East ...	150	200	12					
	5	Barasea ...	Batteahparah ...	Bowalmaree ...	8	West ...	E. & S. ...	75	100	12					
	6	Chundunah ...	Murgydangah ...	Muslandpore ...	36	North ...	South ...	50 yds.	80	5					
	7	Sheetalakha ...	Bhangah ...	Talma ...	20	S. & E. ...	N. W. ...	50	80	12 months up to Ainpore, from Ainpore dry up for 2 months.	125 mds.	2,000 mds.			

Furreed	8	Kacheekatta Khall ...	River Urealkhan ...	Chunder Chur...	4	West ...	East ...	.....	15	5					
	9	Neelakhee Khall ...	Ditto ...	Koomar River...	2	West ...	East ...	25	50 yds.	12					
	10	Moira Pudma ...	Teppacolla ...	Ameennuggur...	8	West ...	East ...	.....	15	5					
	11	Khall Bangabaria ...	Bangabaria ...	Gurracollah ...	6	North ...	South ...	.....	8	5					
	12	Khall Dhobaghatta...	Tagoraneebaree ...	Dhobaghatta ...	4	North ...	South ...	.....	8	5					
	13	Khall Baloogram ...	Baloogram ...	Baliadangah ...	4	East ...	West ...	.....	15	5					
Backergunge.	1	Koomar River ...	Nuseepore ...	Madaripore ...	16	East ...	West ...	200	200	12	1,500	1,500	None ...	Ditto.	
	2	Urealkhan River ...	Koolpuddee ...	Mirzagunge ...	61½	North ...	South ...	1,700	2 to 3,000	12	1,500	1,500	Ditto ...	Ditto.	
	3	Nowabhangnee ...	Urealkhan River at Kallinuggur.	Megna River ...	22	N. E. ...	S. W. ...	800	1,000 to 1,200	12	1,500	1,500	Ditto ...	Ditto.	
	4	Bhaera River ...	Gooabkholah ...	Megna River at Omedpore Marchatully.	15½	N. E. ...	S. W. ...	500	800	12	1,500	1,500	Ditto ...	Ditto.	
	5	Megna River ...	Narainpore Chur ...	Gobindpore ...	24½	North ...	South ...	6,000	8,000	12	1,500	1,500	Ditto ...	Ditto.	
	6	Srikole Dhone ...	Kapalbarakhall ...	Agurpore Nuddy	3½	North ...	South ...	40	40	12	1, 500	1,500	Ditto ...	Ditto.	
	7	Amtullagang ...	Agurpore Nuddy ...	Rafiadee River	3¾	North ...	South ...	100	100	12	1,500	1,500	Ditto ...	Ditto.	
	8	Agurpore Nuddy ...	Srikole Dhone ...	Amtullagang ...	7	North ...	South ...	50	50	12	1,500	1,500	Ditto ...	Ditto.	
	9	Phooltullagang ...	Urealkhan River ...	Rafiadee River...	2	West ...	East ...	300	500	12	1,500	1,500	Ditto ...	Ditto.	
	10	Kedarpore Nuddy ...	Bhootardeea Khall...	Phooltullagang..	4	North ...	South ...	300	400	12	1,500	1,500	Ditto ...	Ditto.	
	11	Pungaseea Nuddy ...	Urealkhan River ...	Turkee Nuddy...	6¾	North ...	South ...	400	400	12	1,500	1,500	Ditto ...	Ditto.	
	12	Kalkenee Dhone ...	Audachur Khall ...	Pungaseea Nuddy.	3¼	North ...	South ...	100	150	12	1,500	1,500	Ditto ...	Ditto.	
	13	Turkee Nuddy ...	Pungaseea River ...	Piprokotty ...	4¼	North ...	South ...	80	80	12	1,500	1,500	Ditto ...	Ditto.	
	14	Fussatullee Dhone...	Urealkhan River ...	Pungaseea Nuddy.	4½	North ...	South ...	60	80	12	1,500	1,500	Ditto ...	Ditto.	
	15	Gajaria Khall ...	Ditto ...	Fussatullee Dhone	3½	North ...	South ...	60	80	12	1,500	1,500	Ditto ...	Ditto.	
	16	Rafiadee Burrisaul...	Phooltulla and mouth of Amtulla River ..	Churramooddy and mouth of Nulchitty River.	22	North ...	South ...	600 to 700	600 to 700	12	1,500	1,500	Ditto ...	Ditto.	
	17	Nulchitty River ...	Nulchitty ...	Jhallokatty ...	14	East ...	West ...	400	400	12	1,500	1,500	Ditto ...	Ditto.	
	18	Bokynuggur River...	Burrisaul ...	Bokynuggur Haut.	10	West ...	East ...	200 to 300	200 to 300	12	1,500	1,500	Ditto ...	Ditto.	

District.	Number.	River, Khall, or Canal.			Length of Channel in Miles.	Direction through the District.		Approximate average width in yards.		Number of months open for navigation.	Maximum maundage of boats employed in the River.		Whether any works are annually carried out for the maintenance of Channel.	Whether Tolls are levied.	Remarks.
		Name.	From what place.	To what place.		From	To	In dry season.	In rains.		In dry season.	In rains.			
	19	Churramooddy River	Churramooddy ...	Nehalgunge ...	12	West ...	East ...	150 to 200	150 to 200	12	1,500	1,500	None ...	None.	
	20	Damooda River ...	Lokhakotty Haut ...	Perozepore ...	5 to 6	East ...	West ...	80 to 100	80 to 100	12	1,500	1,500	Ditto ...	Ditto.	
	21	Kaleejeera Dhone ...	Nulchitty ...	Punchokurrun	14	N. W. ...	S. E. ...	100 to 200	100 to 200	12	1,500	1,500	Ditto ...	Ditto.	
	22	Jhungaleea, Garta, and Satoreea Rivers.	Kowkhally Haut ...	Gujuleea River...	18	West ...	East ...	100	100	12	1,500	1,500	Ditto ...	Ditto.	
	23	Dhansiddee River ...	Bakooree Puchimchur	Gabkhaee River	7	North ...	South ...	80	80	12	1,500	1,500	Ditto ...	Ditto.	
	24	Gujuleea River ...	Jhallokatty Haut ...	Nyamutty Haut	16	North ...	South ...	300 to 400	300 to 400	12	1,500	1,500	Ditto ...	Ditto.	
	25	Kalleegunga River...	Kewaree ...	Sakharee Kooty Haut.	14	North ...	South ...	300 to 400	300 to 400	12	1,500	1,500	Ditto ...	Ditto.	
	26	Kistokalee Khall ...	Jhallokatty ...	Punchokurrun...	12	North ...	South ...	30	30	12	1,500	1,500	Ditto ...	Ditto.	
	27	Shikarpore Khall ...	Punchokurrun ...	Srikole ...	4 to 12	N. E. ...	S. W. ...	30	30	12	1,500	1,500	Ditto ...	Ditto.	
	28	Jhallokatty Bharnee	Jhallokatty ...	Kowkhally ...	12 to 14	East ...	West ...	30	30	12	1,500	1,500	Ditto ...	Ditto.	
	29	Mendigunge River...	Lallgunge ...	Dhurrumgunge	12	East ...	West ...	500 to 600	500 to 600	12	1,500	1,500	Ditto ...	Ditto.	
	30	Luttagang and Burhigunge. ...	Aliabaz ...	Ditto ...	8	East ...	West ...	400 to 500	400 to 500	12	1,500	1,500	Ditto ...	Ditto.	
	31	Hailfa Nuddy ...	Continuation of Boorhi	.....	8	North ...	South ...	200	200	12	1,500	1,500	Ditto ...	Ditto.	
	32	Muskatta Channel ...	Muskatta Haut ...	Muddungunge Haut.	6	East ...	West ...	200 to 300	200 to 300	12	1,500	1,500	Ditto ...	Ditto.	
	33	Kalinga River ...	Gobindpore ...	Choto Lukheechur	16½	North ...	South ...	1,800	2,000	12	1,500	1,500	Ditto ...	Ditto.	
	34	Ilaha River ...	Choto Lukheechur ...	Lukheechur ...	2	North ...	South ...	2,500	3,000	12	1,500	1,500	Ditto ...	Ditto.	
	35	Tetoolea River ...	Mouth of Urealkhan	Sea ...	30	North ...	South ...	5,000	6,000	12	1,500	1,500	Ditto ...	Ditto.	
tinued.	36	Balissur River ...	Perozepore ...	Ditto ...	60	North ..	South ...	1,000 to 3,000	1,000 to 3,000	12	1,500	1,500	Ditto ...	Ditto.	
	37	Beeshkhallee River...	Nayamutty Haut ...	Ditto ...	45	N. E. ...	S. W. ...	1,000	1,000	12	1,500	1,500	Ditto ...	Ditto.	

BACKERGUNGE,—con	38	Kocha River ...	Kewaree ...	Balissur River...	20	North ...	South ...	800	800	12	1,500	1,500	Ditto ...	Ditto.
	39	Khyrabad River ...	Mouth of Burrisaul River.	Angarea Haut...	22	North ..	South ...	350	350	12	1,500	1,500	Ditto ...	Ditto.
	40	Pandop River ...	Dareeal Haut ...	HosseinporeHaut	23	N. E. ...	S. W. ...	200 to 300	200 to 300	12	1,500	1,500	Ditto ...	Ditto.
	41	Rajgunge River ...	Angurea ...	Geelaboneea ...	15	N. E. ...	S. W. ...	300	300	12	1,500	1,500	Ditto ...	Ditto.
	42	Angurea River ...	Rajgunge River ...	Nohalia ...	3	N. E. ...	S. W. ...	300	300	12	1,500	1,500	Ditto ...	Ditto.
	43	Nohalia River ...	Kuddumtulla Haut	Puttooakhalee...	14	N. W. N. E.	S. E. S. W.	400	400	12	1,500	1,500	Ditto ...	Ditto.
	44	Mooradea Dhone ...	Kuddumtulla ...	Kulun Haut ...	8	N. E. ...	S. W. ...	100	100	12	1,500	1,500	Ditto ...	Ditto.
	45	Puttooakhallee River	Geelaboonea ...	Puttooakhalee...	10	West ...	East ...	300	300	12	1,500	1,500	Ditto ...	Ditto.
	46	Beeghaye River ...	Mirzagunge ...	Goolshakhally Haut.	12	North ...	South ...	800 to 1,000	800 to 1,000	12	1,500	1,500	Ditto ...	Ditto.
	47	Badoora River ...	Aila ...	Badoora Haut...	12	West ...	East ...	800 to 1,000	800 to 1,000	12	1,500	1,500	Ditto ...	Ditto.
	48	Boorissur River ...	Amtulee Haut ...	Sea ...	22	N. E. ...	S. W. ...	1,700	1,700	12	1,500	1,500	Ditto ...	Ditto.
	49	Aila River ...	Ditto ...	ChandkhalleeHaut	14	East ...	West ...	1,700	1,700	12	1,500	1,500	Ditto ...	Ditto.
	50	Khagdhone ...	Chandkhallee ...	Utter Borgoma...	14	East ...	West ...	800	1,000	12	1,500	1,500	Ditto ...	Ditto.
	51	Gulacheepa River ...	Gulacheepa ...	Sea ...	20	North ..	South ...	700 to 800	700 to 800	12	1,500	1,500	Ditto ...	Ditto.
	52	Andarmanick River	Aila River ...	Sea ...	24	North ...	South ...	400 to 500	400 to 500	12	1,500	1,500	Ditto ...	Ditto.
	53	Amooah Dhone ...	Amooah ...	Sreekullyan ...	14	East ...	West ...	100	100	12	1,500	1,500	Ditto ...	Ditto.
	54	Tugra Dhone ...	Balissur River ...	Tugra Police Station.	3	West ...	East ...	60 to 70	60 to 70	12	1,500	1,500	Ditto ...	Ditto.
	55	Suplaja Dhone ...	Ditto ...	Mutbarrea ...	12	West ...	East ...	80	80	12	1,500	1,500	Ditto ...	Ditto.
	56	Hulta Dhone ...	Ditto ...	Soonderbuns ...	14	West ...	East ...	100	100	12	1,500	1,500	Ditto ...	Ditto.
	57	Churkhallee Dhone...	Churkhallee Sattchowkee.	Angarea ...	16	West ...	East ...	50	50	12	1,500	1,500	Ditto ...	Ditto.
	58	Kishnakattee River	Backergung Haut ...	Mirzagunge ...	19	N. E. ...	S. W. ...	80 to 100	80 to 100	12	1,500	1,500	Ditto ...	Ditto.
	59	Beeakhalee Dhone ...	Nyamuttee Haut ...	Koter Haut ...	14	S. W. ...	N. E. ...	80 to 100	80 to 100	12	1,500	1,500	Ditto ...	Ditto.
	60	Dhoolea Dhone ...	Dhoolea ...	Panooara Haut	6	S. E. ...	S. W. ...	200	200	12	1,500	1,500	Ditto ...	Ditto.
	61	Algee Gazie Majeea and Kulna River.	Panooara Haut ...	Tetooleea River	16	North ...	South ...	200	200	12	1,500	1,500	Ditto ...	Ditto.